

Minnesota

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J. W. Brower, LL.B., M.A., Saint Paul.....

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AMA House of Delegates Holds Eleventh Clinical Meeting

Dr. David B. Allman, president of the American Medical Association, called for "more freedom, not less, in America and the medical profession," in his address to the opening session of the Eleventh Clinical Meeting held December 3-6 in Philadelphia.

Dr. Allman urged the delegates to embark on local action campaigns to enlist full community support in opposition to the Forand Bill, a pending Congressional proposal which would provide hospital and surgical benefits for persons who are receiving or are eligible for Social Security retirement and survivorship payments. The Forand Bill, he said, is "cut from the same cloth" as national compulsory health insurance and "emanates from the same minds."

Fluoridation of Water

The House of Delegates approved a joint report of the Council on Drugs and the Council on Foods and Nutrition which endorsed the fluoridation of public water supplies as a safe and practical method of reducing the incidence of dental caries during childhood. The report contained these conclusions:

1. Fluoridation of public water supplies so as to provide the approximate equivalent of 1 ppm of fluorine in drinking water has been established as a method for reducing dental caries in children up to 10 years of age. In localities with warm climates, or where for other reasons the ingestion of water or other sources of considerable fluorine content is high, a lower concentration of fluoride is advisable. 2. No evidence has been found since the 1951 statement by the Councils to prove that continuous ingestion of water containing the equivalent of approximately 1 ppm of fluorine for long periods by large segments of the population is harmful to the general health. Mottling of the tooth enamel (dental fluorosis) associated with this level of fluoridation is minimal. 3. Fluoridation of public water supplies should be regarded as a prophylactic measure for reducing tooth decay at the community level and is applicable where the water supply contains less than the equivalent of 1 ppm of fluorine.

Free Choice of Physician

The House passed a resolution which reaffirmed approval of previous interpretations of the Principles of Medical Ethics by the Association's Judicial Council and directed that they be called to the attention of all constituent associations and component societies. One Council opinion, issued in 1927 and reaffirmed in Philadelphia, stated that

the contract practice of medicine would be determined to be unethical if "a reasonable degree of free choice of physician is denied those cared for in a community where other competent physicians are readily available." The resolution also cited a Council opinion, published in the October 19, 1957, issue of *The Journal of the A.M.A.*, which stated that the basic ethical concepts in both the 1955 and 1957 editions of the Principles of Medical Ethics are identical in spite of changes in format and wording. The 1927 Council report also pointed out that "there are many conditions under which contract practice is not only legitimate and ethical, but in fact the only way in which competent medical service can be provided." Judgment of whether or not a contract is ethical, the report said, must be based on the form and terms of the contract as well as the circumstances under which it is made.

The Heller Report

Acting on the report of the Committee to Study the Heller Report on Organization of the American Medical Association, the House reached the following decisions on ten specific recommendations:

1. The office of Vice President will be continued as an elective office.
2. The offices of Secretary and Treasurer will be combined into one office to be known as Secretary-Treasurer, and that officer will be selected by the Board of Trustees from one of its number.
3. The duties of the Secretary-Treasurer will be separated from those of the Executive Vice-President.
4. The office of General Manager will be discontinued, and the new office of Executive Vice President will be established. The latter, appointed by the Board of Trustees, will be the chief staff executive of the Association.
5. The Council on Medical Education and Hospitals and the Council on Medical Service will continue as standing committees of the House of Delegates, but their administrative direction will be vested in the Executive Vice President.
6. The voting members of the Board of Trustees will be limited to eleven—the nine elected Trustees, the President and the President-Elect. The Vice President and the Speaker and Vice Speaker of the House of Delegates will attend all Board meetings, including executive sessions, with the right of discussion but without the right to vote.
7. The House disapproved of the proposal to elect the Trustees from each of nine physician-population regions.
8. The office of Assistant Secretary will be discontinued, and a new office of Assistant Executive Vice President will be established.
9. The Committee on Federal Medical Services will be retained as a committee of the Council on Medical

(Continued on Page A-6)

Original Contributions

Menopause and Thereafter

W. H. MASTERS, M.D.
St. Louis, Missouri

THE ONSET of the climacteric normally varies over a fifteen-year period for each individual woman. Thus, the first symptoms associated with the menopause frequently occur prior to the actual cessation of the menstrual flow. Efforts to alleviate the innumerable complaints associated with this female aging milestone have varied from complete therapeutic nihilism to extensive psychoanalytical considerations. There is, at present, no professional agreement as to an effective solution for this vexing problem of "the change of life."

It is inevitable that the more dramatic symptomatology of the menopause has occupied medical attention to the exclusion of significant consideration of future replacement measures necessitated by this dramatic definition of endocrine imbalance. As physicians, we must face the physiological fact that the postmenopausal years are, for the woman, a socially conditioned phenomenon. She, of all female animals, lives beyond her normal period of reproductivity. Since medical science has been directly responsible for the extra two decades of human life expectancy, the profession has the responsibility of giving adequate physical and mental support for the aging individual.

It has long been obvious that the major phases of our physiological life are growth, mature function, and involution. The influence of the glands of internal secretion upon the phases of growth and mature function have been well defined. It is important that we evaluate the entire endocrine system during the involutionary phase of life, if we are to define, effectively, the retrogressive process of aging.

Present knowledge of pituitary function during the postmenopausal years has been accumulated during the last ten years, as the result of detailed laboratory investigation. Albert¹ has supported data from our own laboratory² in the contention

that the gonadotrophic secretory activity of the pituitary is not depressed by the aging process. In fact, there is a marked elevation of gonadotrophin production from the fiftieth to the seventieth year. Ultimately, of course, there is a reduction of secretory function to a new base level which is roughly half that of the mature function years. There is no question, however, of the continued gonadotrophin production by the pituitary, even into the eighty-year age group. Adrenocorticotrophin production has been described by Pincus³ in a recent publication. It is obvious that the pituitary-adrenal axis continues to function with relatively unabated effectiveness during the involutionary phase of life.

As the result of the maintained equilibrium between the pituitary and adrenal glands, the adrenal is the most active secretory gland of the entire endocrine chain, subsequent to the menopause. Corticosteroid hormones are produced with relatively unabated effectiveness, even to the point of actually creating a catabolic imbalance in such basic physiological functions as protein balance and calcium storage. This is a prime example of independent glandular secretory activity once the axis of interglandular stimulation is destroyed.

The effectiveness of thyroid function during the aging process attracted the interest of investigators as early as 1917.⁴ The first definition of thyroid influence during the aging process described at most a 12 per cent reduction in secretory effectiveness in the aging individual,⁵ when compared to the twenty to forty-year age groups. Starr⁶ has done definitive protein-bound iodine studies on a controlled aging population. He found that the levels obtained are roughly equal to those established for the mature function age groups. It is evident that a good deal of work still remains to be done before definitive statements can be made in terms of effective thyroid secretory activity during the aging process. It is equally obvious that all of the present evidence

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points toward minimal reduction in thyroid secretory activity. This is probably a reduction in physiological demand, rather than an innate inability of the gland to provide effective secretory potential.

Knowledge of the function potential of the pancreas dates from 1940, and the initial efforts of Meyer⁷ and his associates. They described an effectiveness of secretory activity that is roughly 20 per cent reduced over what one might expect for the twenty to forty-year age groups. However, they also point out that this reduction in function would certainly be counterbalanced by the basic reserve potential of the pancreas, and that any demonstrable reduction in secretory effectiveness is, in reality, a theoretical rather than an actual physiological distress. Thus, barring established diabetic states, it is obvious that the pancreas also has the individual ability to return to the mature function status, given the proper exogenous stimulation. It should be noted in passing that the senile onset of a previously undefined diabetic state (even resistant to a prior pregnancy syndrome) is known to be associated with the sex steroid withdrawal of the menopause. The exact connection of the mutually stimulative mechanism between pancreas and an adequately functioning gonad has not been developed to date.

Gonadal secretory activity during the postmenopausal era is obviously at striking variance with the remainder of the endocrine chain. Certainly the menopause represents a major milestone in the involutional retrogression of the gonadal function. It is equally certain that there is evidence of continued ovarian secretory activity during the postmenopausal era.⁸⁻¹⁰ However, this glandular activity is inadequate for the effective clinical support of many of the basic physiological processes of body economy. There is indisputable evidence of continued pituitary gonadotrophin production during the two decades after normal cessation of menstrual flow.^{1,2} Since the ovary is apparently incapable of responding to normally stimulative channels, it must be presumed that permanent menopausal changes are in the direction of resistance to any basic stimulative mechanism. This premature resistance to physiological stimulation is the key to the aging process within the ovary.

It is important to re-emphasize the dual physiological role of the ovary during the mature function phase of life. The primary function of the

ovary is obviously that of reproduction. The secondary function, infinitely more necessary to basic body economy, is that of sex steroid production. We normally tend to think of the climacteric as signifying the end of the female reproductive function. While certainly true, this functional involution is of minor import compared to the distress associated with the involution of clinically effective sex steroid secretory activity. If only reproductive activity failed with the menopause, and clinically effective steroid productivity was maintained, there would be no definition of the "neutral gender."¹¹ This reduction in steroid secretory activity by the gonad is the "Achilles' heel" of the entire endocrine system during the involutional phase of life.

As the result of the inability of the ovary to respond to usual gonadotrophin stimulation, the pituitary-gonadal axis is completely lost. Subsequently, the remaining members of the endocrine chain become uncoordinated secretory organs whose functional involution results from lack of clinical demand, rather than lack of secretory function reserve. Thus, we have the basic definition of the third sex.¹² The "neutral gender" has been arbitrarily defined as comprising all former males and females who have reached an approximate age of sixty years. It must be remembered that this is, of course, a very loose definition in terms of age onset. There are obviously many women who are confirmed members of the "third sex" before they reach their fiftieth birthday. In contradistinction, there are many men who obviously have not qualified for third sex membership by the time they reach their seventieth birthday. It should be remembered that there is roughly a fifteen-year lag in involution of gonadal sex steroid productivity between males and females of corresponding ages. Thus, since we expect the female climacteric to range within the forty to fifty-five year age group, the male climacteric should run approximately from ages fifty-five to seventy.

If we accept the existence of a "neutral gender" from a medical point of view, we are then faced with the problem of recognizing the clinical existence and providing adequate support for this age group during our ever-increasing life span. Primarily, our attention should be directed toward the physiological evidence of sex steroid starvation. Of prime import in this direction is the major concern of the aging process: protein wastage.

MENOPAUSE AND THEREAFTER—MASTERS

The anabolic effects of the sex steroids have been well defined clinically for several years.¹³⁻¹⁶ Of recent vintage, however, is the supportive laboratory work of the protein balance studies associated with the long range sex steroid replacement efforts.^{17,18}

An excellent example of a specific protein imbalance peculiarly associated with the aging process is that provided by the clinical entity of osteoporosis. In this situation, the bony matrix (a protein material) is dissipated from its normal situation in the marrow cavity, once the individual's sex steroid levels are inadequate to maintain positive nitrogen balance. In the female, the onset of this clinically distressing phenomena is, as might be expected, subsequent to the climacteric in the fifty-five to sixty-year age group. If adequate protein balance is obtained through the anabolic effects of steroid replacement techniques, the bony matrix is returned to its normal consistency, and the continued efforts at calcium deposition become clinically effective. In other words, there is no such thing as old bone.¹⁹ If the bony matrix is maintained at a clinically effective level, calcium deposition will continue effectively in the eight-year-age group. Thus, osteoporosis may well be described as a reversible involutionary process.

It must also be realized that the effects of the sex steroids on body economy, range far from the basic concerns of protein balance and calcium metabolism. As an example of the widespread influence of the sex steroids in multiple physiological processes, we may cite the more recent work on the increased instance of atherosclerosis in castrated women as opposed to a controlled population.⁹ The possible effects of the steroids on the cardiovascular system has opened a new field of investigative interest to the research cardiologists.

In the field of senile mental aberrations, the effectiveness of the sex steroid support in the early phases of senile mental involution has been well established. Long range evaluation of patients under steroid support in a controlled series was carried out by the Department of Neuropsychiatry of the Washington University School of Medicine.^{20,21} It is apparent that such early involutional symptomatology as the loss of memory for recent events, the reduced capacity for definitive thinking, et cetera, may be effectively reversed, if steroid supportive measures are in-

stituted sufficiently early in the senile mental involutionary process.

It is indeed unfortunate that senile mental involution occurs with extreme rapidity. Thus, the endpoint for reclamation may well be passed long before family and friends are sufficiently alarmed to bring the individual patient to adequate medical attention. It is also true that many sex steroid-supported patients will ultimately go through significant mental involutionary states. However, this is a long-delayed process when compared to the rapid mental disintegration of the unsupported clinical control group of patients.

If we are to continue long range steroid replacement, we must also assume the complete responsibility of protecting the individual woman against any untoward results which might be occasioned by the replacement techniques. We must protect her against such minor distress as the stimulation of secondary sex characteristics, uterine growth and ultimate endometrial breakthrough bleeding, prolonged and irritating breast tenderness, hirsutism, lowering of vocal pitch, and clitoral irritability. There are four major techniques by which sex steroid replacement can be maintained without untoward stimulation of secondary sexual characteristics.

TABLE I. ESTROGEN INFLUENCE OPPOSITION
METHODS

1. Cyclic estrogen exhibition and withdrawal at regular intervals to shed the endometrium.
2. Constant estrogen influence with cyclic progesterone exhibition and withdrawal to shed the endometrium.
3. Constant estrogen influence with cyclic testosterone exhibition and withdrawal to shed the endometrium.
4. Constant estrogen influence and testosterone opposition to such a degree that hyperplasia is avoided and shedding of the endometrium unnecessary.

One of the primary concerns of the medical public is the question of the possible carcinogenic effect of the sex steroids. This professional anathema to steroid replacement has been predicated upon the basic belief that endometrial hyperplasia is, in many instances, a precursor to endometrial carcinoma. It is obvious that the procedure of choice in any situation of steroid replacement is to avoid the possibility of developing endometrial hyperplasia. The replacement technique, using combinations of testosterone and estrogen at approximately a 20 to 1 milligram

for milligram-absorbed dosage,²² accomplishes this purpose most effectively.

It is impossible for the uterine endometrium to develop hyperplasia under the 20 to 1 combined steroid influence. Other than a possible vaginal spotting from the fourth to the sixth week under maintained steroid influence, the endometrium will not be the cause of bleeding distress. As a matter of fact, after six months of therapy, the uterine endometrium is completely senile tissue, incapable of breakthrough bleeding. Also under the influence of this combined steroid dosage, there well may be a passing breast tenderness, lasting from three to six weeks under therapy. The patient can be completely assured that, after roughly six weeks of therapy, the breast tenderness will disappear, and will not again recur regardless of how long steroid therapy is maintained. Clitoral hypertrophy or irritability has not been a factor in the 20 to 1 ratio influence on women.

Roughly, 20 per cent of the patients under the combined steroid dosage will have either hirsutism and/or lowering of the vocal pitch. This will be particularly true for those of brunette coloring. If it is apparent that hirsutism is progressing, a steroid combination of roughly 15 to 1 absorbed milligram ratio (testosterone over estrogen) should be the therapy of choice, rather than the previously described 20 to 1 ratio. The main reason for the progressive hirsutism in this particular situation is, in all probability, the corticoid secretory influence of an active adrenal gland during this involutionary phase of life. Lowering of the vocal pitch has not been treated effectively. It simply must be accepted as a minor distress of present replacement therapy methods, when it occurs.

It is important to emphasize that we as physicians, must concede the existence of the "neutral gender," a physiologically established fact. Once the "neutral gender's" existence has been accepted, the responsibility for physical and mental support of the aging population will weigh heavily on our hands. The future of steroid replacement certainly is in the direction of those steroid-like substances, which have little or no secondary sex stimulative characteristics, but do retain protein protection, calcium salvage, atherosclerosis retardation, and protection from senile mental involution afforded by the present steroid combinations

as part of their normal physiological function. As physicians we can no longer ignore the responsibility of effectively supporting our aging population.

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Thermal Burns of the Eyelids and Chemical Burns of the Eyes

Emergency Treatment

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BURNS OF THE upper part of the face are of greatest importance in their interference with the visual function. In addition, however, burns of this area cause more cosmetic defect than burns of similar extent elsewhere on the body. To these primary effects we must add the important resultant influence the visual and cosmetic defects have on the emotional and economic status of the patient, his family and his community.

Thermal Burns

Thermal burns of the upper face usually involve the eyelids without burns of the eyeball—only about 12 per cent of patients with burns on the skin of the eyelids have burns of the eyeball.¹ This, of course, is due to the natural protection afforded the eyeballs by the lids in their “winking reflex” closure when potentially injurious material approaches the eyes. The eyeball itself is burned, however, when flames or scalding material spread with explosive force (too fast for reflex closure to operate), or when the heat is so intense or prolonged that parts or all of the lids are destroyed.

When burns of the face are extensive and endanger life, the important systemic treatment is usually the responsibility of the general surgeon and includes the measures to prevent and combat shock (fluid replacement, control of pain and anxiety, maintenance of rest and body temperature, et cetera). Systemic antibiotics and antitetanus treatment are also important.

Initial local treatment to the burned area is directed at the prevention of infection and the restoration of an adequate covering as rapidly as possible before scarring develops and deformity results.²

First aid measures should consist of a dry ster-

ile dressing and systemic control of pain. When hospital care is obtained, the wound may be gently cleaned if extremely dirty (vigorous cleaning and debridement are contraindicated), fluid blebs are left intact as additional barriers against infection, and antibiotic ointments may be applied if gross contamination is certain. An initial layer of meshed gauge, impregnated with petrolatum or boric acid ointment, is placed over the wound and then a thick tight fluff gauze dressing is applied to provide gentle compression and an absorbent material for the fluid wound exudate. Such a dressing in extensive facial burns may necessitate a complete envelopment of the head except for the nose and mouth. If the eyeball has not been damaged, an ointment may be applied to the eye and the eye left covered until the general dressing is changed.

The use of oils, oil-soaked cloths, or greasy materials as a first aid measure should be discouraged for burns about the eyes as they are for burns elsewhere. These are almost certain sources for contamination and make the later definitive wound treatment more difficult.

The surface coagulants (picric acid, tannic acid, gentian violet, and triple dye) are not used extensively for burns about the eyes. As with general body burns, it is recognized that these agents interfere with new skin growth, actually increase the scarring, and infection is frequent under the “protective covering.” The use of the more recent plastic spray coverings is also being discouraged because of interference with new cell growth.

Burns are classified according to their depth as first degree (simple erythema), second degree (bleb formation—partial destruction of skin with survival of some of the epithelial cells), and third degree (destruction of the full thickness of the skin).

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In the partial-thickness burns where healing occurs from the surviving epithelial cells, antiseptics should not be used because they, too, interfere with cell growth. A suitable initial dressing is necessary for protection from contamination and further injury. The deeper second-degree burns heal with some scarring; the first degree and superficial second-degree burns heal without scarring. In whole-thickness (third-degree) burns and some deep second-degree burns, the convalescence is speeded up and the contractures and late deformities are minimized by skin grafting as early as possible. The most critical area for this early grafting is the skin of the eyelids.

Most of the thermal burns which involve the eyeball show only mild erythema and require relatively simple treatment such as a mild antiseptic ointment (e.g., White's mercury bichloride ointment) and possibly a cycloplegic (e.g., atropine) if the inflammation is marked. Immobilizing the lids with a pressure dressing usually makes the patient more comfortable and also, because of the higher globe surface temperature under the closed lids, promotes faster healing.

Small areas of more severe burns of the palpebral and bulbar conjunctiva and cornea are adequately treated with lubricating ointments and repeated passage of a blunt probe along the fornix to prevent the formation of symblepharon.

Extensive deep burns of the conjunctiva are best treated by immediate mucous membrane graft. This graft may be conjunctiva from the other eye or buccal mucous membrane (lower lip or either side of the mouth). Buccal mucous membrane is not as satisfactory in an exposed area of the globe because it remains permanently somewhat thickened and red.

Deep burns involving the cornea will inevitably result in some degree of scarring and loss of vision when the scarring is central.

The use of cortisone cuts down irritability of the eye and reduces the density and vascularization of the scar.

Chemical Burns

A chemical burn of the eye is defined as an injury resulting from local contact with a chemical (solid, liquid, dust, mist or vapor) to such a degree that there is alteration in the structure of the cornea and conjunctiva. If this alteration is not visualized grossly, it may be demonstrated

by a positive stain using 2 per cent solution of fluorescein.

Although this type of eye injury occurs with almost all activities of life, industry is responsible for the great majority of them. The industries where this type of injury is particularly prevalent have adopted measures for prevention and have established facilities for the important quick first aid treatment.

Not long ago the immediate treatment advocated for a chemical eye injury was to inactivate the injurious chemical with a specific prepared material (for example, acid for alkali, and alkali for acid). In order for this ideal in treatment to be effective, the inactivating material itself must not damage the tissue, it must penetrate the tissue as rapidly as the injuring chemical, and it must be ready for immediate use before irreversible damage is done. Because these criteria rarely can be satisfied, any attempt to treat a particular chemical eye injury with a specific neutralizing material is now considered detrimental.³

There are two exceptions to this rule. One, the treatment of lewisite burns with the specific agent, B A L (British Anti-Lewisite or dimercaptopropanol). This is the only effective treatment against this arsenical war agent and is also effective for several types of arsenical poisoning encountered in civilian practice. Another exception is the commonly used cocaine hydrochloride for neutralizing the iodine used as a cauterizing agent in the treatment of dendritic (herpes simplex) infection of the corneal epithelium.

The immediate treatment now generally accepted for all types of chemical eye injuries is the quick irrigation of the eye with *water at the nearest source of supply*. The industries where chemical eye injuries are common familiarize the new employee with the location of these water sources and with the importance of immediate and thorough irrigation. Some industries also have special eye irrigation water fountains, operated by the foot, placed strategically in the plants for immediate and very effective irrigation. This "on the job" water irrigation is advised for a period of about five minutes and then the patient is conducted to the physician where, after instillation of a local anesthetic, irrigation with water or normal saline is continued for about half an hour. Also, during this period the eye is carefully in-

spected, under loupe or slit-lamp magnification, and any insoluble particles on the ocular surfaces are removed using applicators or forceps.

The initial phase of irrigation removes any unreacted portion of the injurious agent still present on the corneal and conjunctival surfaces. Continued irrigation is necessary to remove the chemicals which have already combined with the tissues and begun their denaturing process.

In addition to immediate and prolonged irrigation, mechanical removal of injured or possibly contaminated tissue (vigorous wiping of the cornea and conjunctiva with cotton applicators) has been advocated.⁴ This, however, has not been accepted generally as more effective than adequate washing.³

After the measures for removing the chemical have been exhausted, attention is directed toward providing conditions favorable to healing and toward prevention of complications such as infection and formation of conjunctival adhesions. An antibiotic ointment is used both to prevent infection and also to provide a lubricant to prevent adhesions. Continued use of local anesthetics is avoided because of their detrimental effect on epithelial regeneration. A cycloplegic is indicated for any associated iritis (atropine for the more severe cases). Firm eye dressings are usually advisable for the comfort of the patient, in order to promote healing from the increased corneal surface temperature, and to avoid mechanical disturbance of the regenerating epithelium. Also, the use of cortisone on chemical burns, clinically and experimentally, has been shown to reduce the inflammation, scarring and corneal vascularization.⁵ Cortisone should not be used, however, in the presence of uncontrolled infection.

After the initial examination and treatment, it is important to know the identity or chemical nature of the substance causing the injury. When we know this and also have a familiarity with the type of ocular injury to be expected from the class of chemicals to which the particular substance belongs, we are aided in predicting the probable course, prognosis, and extent of treatment necessary.

The injurious action of both acids and alkalis is fundamentally a result of the shifting of the hydrogen ion concentration of the tissue out of the range in which the tissue components are stable.³ Other ions play an additional role in

some instances but in general the injury from acids and alkalis depends on the concentration of hydroxyl and hydrogen ions and the duration of their action.

With acids of considerable strength the action is one of coagulation of all protein with which contact is made thus forming insoluble acid proteinates. This reaction is irreversible and so the destruction of the affected tissue is permanent. The destruction is also instantaneous. Penetration of the acid is limited by the barrier made by the dense layer of precipitated protein. A whole layer such as the cornea may be lost only when the injuring acid is great in concentration and amount.

Alkalies produce some of the most severe chemical eye injuries.² The increase in hydroxyl ion concentration beyond the limits of tissue protein stability results in the formation of gel-like alkaline proteinates. In addition to this, however, the alkalis combine with the fats to form soaps and in this way they destroy the structure of the cell membranes and thus penetrate rapidly into the tissues. This speed of penetration is responsible for the capacity of alkalis to cause great intraocular damage. For example, traces of ammonia were detected in the anterior chamber as early as five seconds after liquid ammonia was placed in the rabbit's eye.² Alkalies also have a hygroscopic action which removes water from the cells and adds to the total necrotic process.

There are also some chemicals which produce changes in the tissue proteins but do not significantly alter the hydrogen ion concentration. The altered protein is unable to perform its function and therefore inflammatory and degenerative reactions result. The injurious effect on the eye from such a chemical may be just as severe as from alkalis and acids. Examples of these are the war gases, lewisite and mustard gas.

After the initial immediate irrigation and cleaning necessary for all chemical eye injuries, a study should be made of the chemical properties of the injuring substance.

This is particularly important now that there is such a great variety of products being used in industry and the home . . . with new chemicals being added daily. When these properties are known we are aided in planning future treatment and predicting the prognosis.

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BCG Vaccination in a Tuberculosis Prevention Program

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THE EXISTENCE of immunity in tuberculosis has been challenged frequently, although it has been shown unequivocally in animals and man that tuberculous infection which is well controlled does produce appreciable immunity against a tuberculous reinfection. It has been stated recently that most cases of tuberculosis are derived from those individuals who are positive reactors to tuberculin. On the face of it, this is a true statement since one cannot have disease without reacting to tuberculin, but the implications are misleading. One cannot make this general statement without qualifications.

For example, a positive tuberculin reaction in an infant, child or even a very young adult may mean a recent infection. This is especially true when such individuals react to a small dose of tuberculin. In such groups, the course of events may be either one of healing or of active disease. Naturally, under these conditions the majority of the cases of tuberculosis will arise from this group. However, if a tuberculous infection has gone on to healing as one is more likely to find in adults, but can also be found in children, such an individual is more resistant to a reinfection than a person who has never had an experience with the tubercle bacillus and later becomes exposed to virulent infection.

Bates and Davey,¹ University of Michigan, found that in a ten-year observation period of medical and nursing students there were twenty cases of tuberculosis ranging from minimal to moderately advanced with cavity formation. All of these occurred in students who were negative reactors to tuberculin on admission to school (first and second strength PPD). There were no cases of tuberculosis in the students with positive tuberculin reactions at the start of training.

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All the twenty cases occurred in students who failed to react to even 0.005 mg. of PPD.

The well-documented British study in adolescents² revealed an incidence of 0.74 per 1000 per year among those originally positive to 1:100 O.T. (100 TU) only, as compared to 1.94 per 1000 per year in a concurrent negative reactor group. Among those who were initially positive (15+mm) to 1:3000 O.T. (3 TU) the rate was 2.93 per 1000 per year. Thus, there was up to four times as much tuberculosis in those who reacted to the small dose of tuberculin or did not react at all, as compared to those who reacted to the large dose of tuberculin (100 TU) only. Recently, the U. S. Public Health Service found a similar correlation in their study in student nurses. They found approximately one-half as much tuberculosis in those who reacted to the larger dose of tuberculin only as compared to those who reacted to the small dose or not at all. As will be discussed below, those reacting to the large dose of tuberculin had practically the same degree of immunity as those vaccinated with *Bacillus Calmette-Guérin*.

Another striking example of acquired resistance is the experience of the Papworth Village (England).³ Here, parents with tuberculosis are allowed to live a normal communal life with their children under more or less ideal conditions (food, housing, security, and so forth). Of the 108 children born in the village since 1921, Dr. R. R. Trail, present director, writes (1955): "We do not know of any proved case of clinical pulmonary tuberculosis to date, and yet we know that all these children were tuberculin-positive in childhood, the majority by the age of two and one-half. Seventy of the boys were captured in Singapore and worked on the Death Railway of Siam. None of them developed tuberculosis."⁴

In summarizing, then, a healed primary infection in human beings in the lung or elsewhere confers an increased resistance against virulent reinfection. This is attested by a decreased incidence of disease, a greater localization, and a better prognosis. Paradoxically, however, even

in healed infection, the possibility that viable organisms may produce active disease at a later date is present, since in many instances they may remain viable in the body. It is for this reason that artificial immunization with an organism such as BCG, which can be controlled, would be highly desirable when its potentialities as a vaccine, though not as great, approach those of the virulent organisms.

In regard to BCG vaccine, recent advances in freeze-drying have made it possible to standardize this vaccine (viability, potency, et cetera), as well as determine its safety before distribution. In fact, at the present time the vaccine as produced by Research Foundation and the University of Illinois is not distributed until all the standardization and safety tests have been completed. This usually takes a period of six months.⁵ The recent report by Dubos and Pierce has indicated that the freeze-dried vaccine distributed by Research Foundation and the University of Illinois multiples readily in his mice, that it is a good cord former, that the freeze-dried form is as effective as the fresh vaccine, and that it compares favorably with other vaccines in this country or abroad.⁶ Dr. Willis and Dr. Vandiviere of Chapel Hill have shown that this same vaccine is as potent or more so in animals and man than any other vaccine, including BCG, they have tested.⁷ This has also been verified by Donald Smith of Madison,⁸ Wisconsin and Guy Youmans of Northwestern University.

In summary, BCG in the dried form, as produced by Research Foundation and the University of Illinois, is a highly effective vaccine which is well standardized before distribution.

Is BCG effective in the prevention of tuberculosis in humans?

The recent clinical studies in regard to the efficacy of BCG vaccine is most impressive. In May, 1957, Dr. Aronson presented his Indian studies followed for a period of twenty years at a meeting of the American Trudeau Society. There were three times as many cases of minimal pulmonary tuberculosis, ten times as many cases of moderately advanced tuberculosis and three and one-half times as many cases of far advanced tuberculosis in the controls as in the vaccinated. There were five times as many tuberculosis deaths in the controls as compared to

the vaccinated. All but fifteen of over 3,000 individuals under study were followed.

One of the best controlled studies was initiated in 1950 by the Tuberculosis Vaccine Clinical Trials Committee of the Medical Research Council of Great Britain and included nearly 56,000 male and female students in secondary schools between fourteen and one-half and fifteen years of age, since the incidence of tuberculosis in Great Britain rises markedly at the age of fifteen. The experiment was carried out in the heavily populated areas of North London, Birmingham and Manchester. Those children who had known contact with a case of tuberculosis within two years were excluded from the trial.²

All eligible children were given tuberculin tests and chest x-rays were taken. The first tuberculin test consisted of 0.1 ml. of a 1:3000 dilution of Old Tuberculin (3 TU). If negative to this strength, they were retested with 0.1 ml. of 1:100 dilution of Old Tuberculin (100 TU). Those children found to be negative to the largest dose of tuberculin were divided into two groups according to the final digit of the serial number appearing on their record cards. The children of one group were vaccinated intradermally with 0.1 ml. (0.075 mg.) of a freshly prepared liquid vaccine which was obtained from the state Serum Institute in Copenhagen. Nearly 94 per cent of the participants were followed for the first thirty months and a somewhat lesser number were followed over a period of four years. (The children were contacted three times and final tuberculin tests and chest x-rays were given.) The films were reviewed by an independent assessor who was kept unaware of the results of the tuberculin test and whether or not vaccination had been performed.

During the first two and one-half years, there were thirteen cases of tuberculosis among the BCG-vaccinated group which gave an annual incidence of 0.37 per 1,000 and there were sixty-four cases in the tuberculin negative non-vaccinated group, an incidence of 1.94 cases per 1,000 children. During the period between two and one-half and four years after the start of the study, thirty-eight additional cases occurred in the unvaccinated group, and five in the BCG-vaccinated group. This indicated that BCG vaccine retained its effectiveness for as long as four years.

BCG VACCINATION—ROSENTHAL

TABLE I. MEDICAL RESEARCH COUNCIL (GREAT BRITAIN) STUDY
Cases of tuberculosis starting within two and a half years of entry to the trial*

Section		Skin Test and Vaccination Group	Estimated Number of Participants	Definite Cases of Tuberculosis		Possible Cases of Tuberculosis Starting Within 30 Months
				Number Starting Within 30 Months	Annual Incidence Per 1,000 Participants	
A	Children admitted concurrently with those given BCG vaccine	Negative unvaccinated	13,200	64	1.94	2
		Negative, BCG, vaccinated	14,100	13	0.37	2
		Positive to 3 T.U. Positive only to 100 T.U.	15,800 6,500	69 12	1.75 0.74	3 1
B	Children admitted concurrently with those given vole bacillus vaccine	Negative unvaccinated	6,400	33	2.06	2
		Negative, BCG, vaccinated	6,400	5	0.31	1
		Negative, vole bacillus vaccinated	6,400	7	0.44	1
		Positive to 3 T.U. Positive only to 100 T.U.	8,600 3,500	37 6	1.72 0.69	2 0
C	All participants included in the above comparison†		56,000	165	—	9

*For the definition of the starting point of the illness, see text.

†That is, all participants in Section A plus the vole-bacillus-vaccinated group in Section B.

There can be no question in this study but that the reduction in the incidence of tuberculosis was due to BCG. The random allocation of children to the two groups, the freedom from bias in the assessment of the occurrence of cases and the severity of cases make any other conclusion impossible. One statement on the efficacy of BCG vaccination in this study reads as follows: "According to the present results, if none of the tuberculin-negative entries had been vaccinated, 165 cases of tuberculosis would have been expected among them within thirty months of entry. If all of them had received BCG vaccine, thirty cases would have been expected. The difference of 135 cases represents a reduction of 82 per cent in the incidence of tuberculosis in the tuberculin negative group (Table I).

In our own studies in Chicago (which included all age groups in both white and colored individuals) we found that in newborns with no contact with tuberculosis but coming from areas where the incidence of tuberculosis is high, that there was a 78 per cent reduction in morbidity and 79 per cent reduction in the mortality in the vaccinated as compared to the control group. This group was followed for eighteen years. In babies born to tuberculous households (followed for 15 years) in which all the children were isolated in foster homes for varying periods of time, there was a 68 per cent reduction in the morbidity and an 80 per cent reduction in mortality in the vaccinated as compared to the control group (Table II).

In children in a federal housing project followed for thirteen years, where a complete tuber-

culosis control program was in effect, there were no cases of tuberculosis in the vaccinated and nine cases in the nonvaccinated, with two deaths. This latter group included those who did not react to tuberculin, three cases; those who reacted to tuberculin, three cases; and those in whom the tuberculin status was unknown, three cases. In medical students at the University of Illinois followed over a period of sixteen years there were no cases of tuberculosis in the vaccinated as compared to ten cases in the non-vaccinated (two in the negative reactors, four in the positive reactors and four in whom the tuberculin status was unknown). In nursing students at the Cook County Hospital over a fifteen-year period there was a 58 per cent reduction in the morbidity of the vaccinated as compared to the controls. However, the vaccinated were allowed to work in a tuberculosis hospital for two months whereas the negative-reactor controls were not allowed to do so.

A comparison of the morbidity and mortality rates of all Chicago projects mentioned, reveals that the highest morbidity rate is found in those groups in which the exposure is the greatest, namely, nursing students and newborn infants in contact with tuberculosis. This morbidity is high irrespective of the fact that in both of these groups the housing, nutrition, and the social status were of a relatively high order. Vaccination reduced the morbidity 58 and 78 per cent respectively, compared with the controls under similar conditions, except as indicated.

Improvement in housing favorably affects the morbidity rate in children not vaccinated and

BCG VACCINATION—ROSENTHAL

TABLE II. RESULTS OF STRICTLY CONTROLLED STUDIES OF BCG VACCINATION
All Age Groups Carried Out Over Past Eighteen Years

	Vaccinated					Non-Vaccinated					Per Cent Reduction in Vaccinated Group ¹	
	No. in Study	Tbc. Cases	Morb. Rate ²	Tbc. Deaths	Mort. Rate ²	No. in Study	Tbc. Cases	Morb. Rate ²	Tbc. Deaths	Mort. Rate ²	Morbidity	Mortality
Infants												
Non-contact	5426	18 ³	3.3	2 ³	0.4	4128 ⁴	63	15.3	8	1.9	78	79
Contact	311	4	12.8	1	3.2	250 ⁴	10	40.0	4	16.0	68	80
Children												
Orphanages	2370	0		0		1348 ⁵	12	8.9	0		100	
Housing project (Ida B. Wells)	947	0		0		944 ⁴	3	3.2	0		100	
						875 ⁵	3	3.4	1	1.1	100	100
						584 ⁵	3	5.1	1	1.7	100	100
Housing project (Altgeld)	2574	0		0		1900 ⁵	0		0			
						612 ⁵	0		0			
Adults												
Student nurses	269	2	7.4	0		281 ⁴	5	17.8	0		58	
						476 ⁵	3	6.3	0		—17	
Medical students	472	0		0		313 ⁴	3	9.6	0		100	
						1079 ⁵	4	3.7	0		100	
						279 ⁵	5	17.9	0		100	

¹—Rate for control group taken as 100 percent.²—Rate per 1,000.³—One infant had contact since birth with open tbc. The other, a "no take" after vaccination.⁴—Negative tuberculin reactors.⁵—Positive tuberculin reactors.⁶—Tuberculin reaction status incomplete.

non-reactors to tuberculin (3.2 per thousand in contrast to 15.3 per thousand in poor housing areas). Complementing good housing with BCG vaccination lowered the morbidity rate to zero. These figures stress the importance of housing in a tuberculosis control program. When a complete tuberculosis control program is in effect, including removal of persons with active tuberculosis, providing adequate housing and nutrition, plus periodic examinations, the incidence of tuberculosis in those vaccinated with BCG was zero.

In summary, BCG has been shown unequivocally to increase the resistance against tuberculosis in numerous human trials. No vaccine has had better valid statistical evidence to prove its efficacy in human beings. BCG should be considered only as part of an overall tuberculosis control program.

Dr. Geoffrey Edsall,⁹ editor of the *Journal of Immunology* and Dr. Guy Youmans, head of the Department of Bacteriology, Northwestern University,¹⁰ recently stated that there is more statistically acceptable evidence that BCG is an effective vaccine against tuberculosis than there is for diphtheria and tetanus toxoids and even small-pox vaccine.

Will the usefulness of the Tuberculin Test be lost as a diagnostic measure?

In the diagnosis of active tuberculosis the

value of the tuberculin test is not paramount, since various laboratory tests including determination of sedimentation rates and making of x-rays are used to make the final diagnosis. However, the possibility that the usefulness of the tuberculin test might be lost to the epidemiologist must be considered. This is particularly true in areas where the rate of tuberculous infection is low. Under these conditions, the detection of a small proportion of the infected individuals by means of the tuberculin test becomes worthwhile. Where the incidence of tuberculous infection is high, however, as in certain sections of many of our large cities, the determination by means of the tuberculin test that the majority of the population is infected is of little value. The appropriate control measures can be applied just as easily to the whole population as to the majority found to be tuberculin-positive. The question should be considered seriously whether an 80 per cent reduction in the incidence of tuberculous disease in vaccinated individuals might not more than compensate for the lack of the usefulness of the tuberculin test for the determination of the incidence of infection in those localized areas of high prevalence.

With chemoprophylaxis, is vaccination necessary?

To answer this question, one must distinguish

between the management of those individuals with negative tuberculin reactions and the management of individuals who are recent converters.

Persons with Negative Reactions.—In the management of those with negative tuberculin reactions, there is a choice of using BCG or chemoprophylaxis. BCG is preferable because: (1) it raises the patient's immunity to tuberculosis, (2) its effect lasts for several years, (3) it has had a large scale trial, and (4) after vaccination it is effective without further co-operation on the part of the patient. Chemoprophylaxis on the other hand: (1) does not raise immunity by itself, (2) suppresses tubercle bacilli only during the period the drug is taken, (3) is experimental, and (4) requires continued patient co-operation over a period of many months.

"Recent Converters."—Isoniazid has been suggested for "recent converters," especially in infants under two years of age and for nurses. It is recommended that treatment be given daily and continued for one year. This method should not be considered as a substitute for use of BCG but as an adjunct to it; that is, in converters who have not been vaccinated or in vaccinated persons who have a marked augmentation of their tuberculin reaction, and particularly in all persons with x-ray evidence of the disease. In March, 1956, Waring, who was among the first to recommend the treatment of recent converters with isoniazid stated:

"I think negative reactors to the tuberculin test among highly exposed persons should have BCG vaccination. This would include nurses, medical students and children in tuberculous families. On the other hand, if you do not approve of this, one must surely seriously consider chemotherapy of recent converters with or without x-ray pulmonary signs."

It is understandable that one may expect even greater difficulties in the administration of a chemoprophylaxis program aimed against tuberculosis among civilians than was experienced under military conditions with the chemoprophylaxis of malaria and gonorrhea.

The possibility of the development of resistance to isoniazid by the infecting organism must also be considered. Furthermore, it is known that before tuberculin sensitivity develops, the infecting organism probably has already multiplied, disseminated and produced pathology. Dr. Edith M. Lincoln of New York University, Bellevue

Medical Center, states: "In a study over a period of about fifteen years, just before chemotherapy, we found that over 85 per cent of children under two years of age with positive tuberculin test showed either parenchymal or node involvement or both." (It should be emphasized that this was a group of consecutive cases all found on wards of a pediatric service.) Since isoniazid does not kill the virulent tubercle bacilli in the animal host, these organisms will remain as a constant source of danger. Every effort should be made to minimize the multiplication of virulent organisms within the body.

Conclusions

BCG is an effective vaccine for the prevention of tuberculosis. It should never be considered as a substitute for the time-honored and time-tested principles of tuberculosis control but as an adjunct to these methods. BCG vaccination is recommended for infants and children in areas of high incidence and for those individuals who will be unavoidably exposed to tuberculosis (medical and nursing students, individuals in tuberculosis households, penal and mental institutions, et cetera).

These recommendations have been made by the American Trudeau Society, which is the medical branch of the National Tuberculosis Association, and the U. S. Public Health Service, and have been recognized by the Council on Drugs of the American Medical Association.

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Problems of Selection in Studies Based upon Hospital and Autopsy Data

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THE STUDY of association has proved invaluable in medicine. The philosophy of diagnostic medicine is based upon the utilization of known associations between certain signs, symptoms or syndromes and particular diseases. Much of our understanding of the mechanism of disease has come from the observations of characteristics of persons who get the disease. Persons with certain characteristics exhibit an apparently higher incidence-rate or more severe manifestations of the disease than others.

Investigations which attempt to discover such associations are almost always based upon the observation of a series of patients who have presented themselves at a particular institution or group of institutions. These institutions are usually the larger hospitals or clinics in a given area. They are the ones with the staff, money and research goals necessary to keep adequate records and develop a large enough series of cases.

The cases represented by an autopsy series are certainly not typical of all deaths. The majority of deaths do not result in autopsy. What forces select a particular death for any given series? In any series of hospital patients the individuals have proved themselves different from the general patient by arriving at that particular hospital for treatment rather than at another hospital. What brought them into this investigator's series?

The effect that selective forces may have upon hospital data studies and autopsy data studies has been discussed before by Berkson¹ and Gilliam.² The purpose of this paper is to reemphasize the importance of these selection forces and to demonstrate by way of two hypothetical examples, the biases they may create. A more general discussion follows the example.

Examples

Example 1.—An association between rheumatoid arthritis and rheumatic heart disease has been observed

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by several investigators. Most of the articles concerning this apparent association have been supported by a set of data based upon a series of necropsies. Each investigation points out essentially the same thing. Among persons with a diagnosis of rheumatoid arthritis, evidence of rheumatic heart disease occurred much more frequently than among control groups. The following discussion will be concerned with interpretation of the observed data only. Whether the theory can be justified upon a purely physiological-pathological basis is a subject for another paper.

The paper by Sokoloff³ was chosen for illustrative purposes only. Many of the others listed in his bibliography would do as well.

TABLE I. INCIDENCE OF EVIDENCE OF RHEUMATIC HEART DISEASE IN AUTOPSY GROUPS

	Evidence Rheumatic Heart Disease	No Evidence Rheumatic Heart Disease	Total	Percent with Evidence
Rheumatoid arthritis patients necropsies	10	91	101	9.9
Consecutive necropsies (19 or more years of age)	66	1088	1154	5.72
	76	1179	1255	

The author defines as precisely as possible what he considers as evidence of rheumatic heart disease at autopsy. He gives the source of data and summarizes the results in a table like Table I.

After discussing some of the limitations of the material, the author states, "If recognition is made of all of these limitations, the results of the present investigation suggest that in the individuals with rheumatoid arthritis, there may be a somewhat higher incidence of heart disease indistinguishable from rheumatic heart disease than chance would dictate." The statement is essentially correct. Unfortunately, it is a statement about the observations upon a group of selected individuals observed in the autopsy series of these particular institutions. There is a very real possibility that the reason for the observed high incidence of heart disease among the rheumatoid arthritic patients has nothing at all to do with a relationship between the two diseases in the unselected population but is entirely the result of the selection which brings the patient to autopsy.

Bayles⁴ writing on this same subject gives a clue to the possible explanation of these observations. "... why they (rheumatoid arthritics with rheumatic heart dis-

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TABLE II.
SUMMARY OF HYPOTHETICAL AUTOPSY RATES

Diseases Diagnosed at Death	Autopsy Rate
Rheumatic heart disease	40 percent
Rheumatoid arthritis	10 percent
Rheumatic heart disease and rheumatoid arthritis	50 percent
Rheumatic heart disease and all others (average)	60 percent
Rheumatoid arthritis and all others (average)	30 percent
All others (average)	20 percent

ease) should come to autopsy more than an unselected group (of rheumatoid arthritis) is not clear, unless the type of fatal illness led to hospitalization and more intensive study. It is well known that sufferers of rheumatoid arthritis do not die of this disease and many die of other causes in nursing homes and in their own homes where facilities for autopsy examinations are not readily accessible." If one admits the possibility that a patient who has a dramatic disease or one wherein the death might be sudden and unusual has a greater chance of arriving at autopsy than others do, then a simple possible answer to Bayles' dilemma presents itself.

Suppose that 2 per cent of all persons would have evidence of rheumatic heart disease observable at autopsy regardless of whether they are persons with rheumatoid arthritis or just drawn from the population in general. Suppose, further, that the general autopsy rate for the entire population under consideration is about 20 per cent. The general autopsy rate is contributed to by heart disease deaths, cancer deaths and accidental deaths, all of which will have high autopsy rates, as well as deaths among persons with diseases less apt to be investigated by subsequent autopsy. It would seem reasonable, then, that the autopsy rate for persons with rheumatoid arthritis alone would be considerably lower than the autopsy rate for the population in general, say about 10 per cent. It would also seem reasonable that those persons with rheumatic heart disease damage would have a higher autopsy rate than those from the average population, say 40 per cent.

Finally, a patient may have two or more diseases present and diagnosed at the time of death. It would seem reasonable that this would increase the likelihood of autopsy above that of a patient having but one of the diseases. Such a multi-disease patient would be more interesting from the scientific point of view and would be more apt to be studied intensively. Table II presents a summary of the assumptions concerning autopsy rates.

Now let us follow 1,000 recent deaths among rheumatoid arthritis patients and 1,000 recent deaths among patients with other diseases. By virtue of our first supposition concerning the incidence of evidence of rheumatic heart disease, the expected incidence for both groups is 2 per cent. A summary of population incidence is given in Table III.

The true picture in the population is clear. What happens to the autopsy data after these selection factors (different autopsy rates) have operated? Imposing the autopsy rates summarized in Table II on the various types of patients listed in Table III gives the expected number of the original 2,000 patients which will be

TABLE III. INCIDENCE OF EVIDENCE OF RHEUMATIC HEART DISEASE IN POPULATION

	Evidence Rheumatic Heart Disease	No Evidence Rheumatic Heart Disease	Total	Percent with Evidence
Rheumatoid arthritis diagnosis patients	20	980	1000	2 percent
Other patients	20	980	1000	2 percent

TABLE IV. EXPECTED NUMBER OF EACH TYPE OF PATIENT AT AUTOPSY

	Evidence Rheumatic Heart Disease	No Evidence Rheumatic Heart Disease	Total	Percent with Evidence
Rheumatoid arthritis diagnosis patients	(.5)(20)=10	(.1)(980)=98	108	9.9 percent
Other patients	(.6)(20)=12	(.2)(980)=196	208	5.8 percent

classified in each way at autopsy. These are summarized in Table IV.

Obviously the choice of rates utilized for this example were deliberately chosen so that the tabled results would correspond with the data reported by Sokoloff. An attempt was made to make the choices reasonable (2 per cent incidence of evidence of rheumatic heart disease, 20 per cent average autopsy rate). The actual magnitude of the rates chosen may be quite far from the truth. The basic argument will not be altered by such errors, however. The only purpose of the hypothetical demonstration was to show that such selection could take place. Furthermore, if one thinks that the assumption of differential autopsy rates is a reasonable one, he must expect such selection forces to create artifacts in such data. The effects of these forces superimposed upon the data, will mask whatever results might have been available and will always lead a critical observer to be suspicious of any unique interpretation placed upon the data.

The fact that several authors have been able to get essentially the same type of results does not constitute any supporting evidence about the relationship between the two diseases. It may simply constitute evidence that the same selection factors were operating in all of their separate experiences. Obviously an experiment is necessary which is designed to determine whether there is an association between the two diseases without being influenced by these selection factors. One valid method for attacking this problem is immediately apparent. A random selection of persons with rheumatoid arthritis should be made and followed until death, with a subsequent autopsy on every one. Then a random selection on some control group should be made and these, as well, followed to death with an autopsy on every one. The comparison of the incidence of evidence of rheumatic heart disease in these two groups would constitute a legitimate study. In such a study the individuals have not been given an opportunity to select them-

selves into an autopsy series. As difficult as this study may seem it is probably the easiest reliable method for obtaining the answers desired.

Example 2.—Many investigators have reported that the incidence of breast cancer in the family history is higher for patients who have breast cancer than for an arbitrarily chosen control group with a benign disease.

Jacobson⁵ reports a series of cases where the incidence of breast cancer among mothers of breast cancer patients and benign disease control patients were observed. These data were later given a careful interpretation by Busk.⁶ A final interpretation would indicate that the incidence of breast cancer among mothers of breast cancer patients was twice that of the mothers of control patients.

These results are reproduced by several authors. The exact incidence of maternal history of breast cancer is not important for this paper. It is the possibility of selection which is under investigation. It is entirely possible to get results like those observed by permitting the patients to select themselves into the study.

Assume that about 5 per cent of the women in the entire population under consideration have mothers with a previous history of breast cancer. For a given year, start with a hypothetical group of breast cancer patients, say 20,000. According to our previous assumption 19,000 of these breast cancer patients will have mothers with no previous history of breast cancer. One thousand will have mothers with previous history. Let us assume that among the women whose mothers have history of breast cancer, 2 per cent of them will arrive at hospitals concerned. Among the women whose mothers have no previous history of breast cancer 1 per cent will arrive at the hospitals concerned. One per cent of the 19,000 women who have breast cancer but whose mothers had no history of breast cancer is 190. Two per cent of the 1,000 women with breast cancer whose mothers had history of breast cancer is twenty. Under these assumptions we will end up with 210 breast cancer patients at the hospitals concerned, of which twenty have mothers with history of breast cancer. This would lead us to believe that twenty out of 210 (approximately 9.5 per cent) patients hospitalized for breast cancer have mothers with history of breast cancer.

This high rate of family incidence of breast cancer (9.5 per cent) as opposed to the true value of 5 per cent has nothing to do with a hereditary factor. It has nothing to do with the fact that these women have breast cancer. It has to do with selection and entry rate into the hospitals. The entry rate for women with maternal history of breast cancer into these particular hospitals has been assumed to be twice as large as the entry rate for those with no maternal history of breast cancer. Some possible indications for this last assumption are as follows: (a) The awareness of the disease to be found among women with maternal history of breast cancer make for earlier recognition and for their getting to the doctor in time so that treatment is feasible. They are not kept at home as terminal cases without ever arriving at the hospital. (b) The awareness of the disease and its serious implications makes for a desire to go to the leading institutions in the

areas and seek the most up-to-date treatment. One may argue that these forces are not sufficient to double the entry rate for one group. One cannot argue that these forces are nonexistent. They are there to a certain extent, however large.

Summary

Two examples have been presented. They represent examples of possible misinterpretation of observed data because of selection bias. The point has been made that these patients must have been patients at the hospitals concerned before they could become contributors to the study.

If the goal of the study is to obtain estimates of incidence in the general population, the possibility of selection must be considered. All that is necessary to invalidate such a study completely is that persons with and without the characteristic being studied should have different entry rates into the study.

If the goal of the study is to describe what is to be seen by a doctor in one of these hospitals (not a description of the population in general), then this type of study may be valuable. It will describe the incidence to be observed after the selection has taken place. Unfortunately, these selection factors will vary from place to place and from time to time. The usefulness of the information would therefore be limited to the source hospital or hospitals.

In general, the solution to this dilemma is to anticipate the possibility of the presence of selection forces. The study must be designed in such a way that the patients are not given this opportunity to select themselves. This may involve the large, more difficult "forward" study. It may involve intensive "follow-up." It may require the cooperation of several hospitals so that an entire area is covered by the survey. Whatever it involves, it can give answers. It is true very often that the quicker, easier methods of study cannot possibly give correct answers.

These selection forces should be expected in all investigations of this kind. A careful investigator will try to anticipate such biases before the study is undertaken and obtain data in such a manner that their influence is eliminated. If this is not possible, the strength of these selection forces should be evaluated so that some estimate of their influence is considered. In any case, the

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Criteria for Pediatric Referral to Psychiatry

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BY WHAT criteria should the busy practitioner be guided in considering pediatric referral to psychiatry?

A few weeks ago a boy of fourteen years was referred for psychiatric attention because of fatigue. This boy had been successively treated for thyroid dysfunction, anemia, possible poliomyelitis, cerebral palsy and damage to the brain—five serious diagnoses and six medication programs. However, the only physical complaint had been that of fatigue; there never had been abnormal results of laboratory procedures. In retrospect, it would appear that the physician who saw the boy at the age of six years should have recognized the symptom of fatigue as reflective of a childhood psychologic withdrawal. Psychiatric treatment was indicated at the time the boy was six years old, before the ravages of poor adjustment to school, unhappy social experiences and parental frustration had added their toll to the emotional war already present in this boy's personality. Yet it may well be that this child's physician had, in fact, recognized the psychiatric need, but had met family opposition in the form of complete refusal to consider a psychiatric diagnosis, insistence on additional "organic" tests and medication programs, or even insults to the physician for suggesting such a degrading thing as "insanity" in the family.

The problems of parental education about psychiatry and the interpretation of defenses used to counter the suggestion of psychiatric referral cannot be the subjects of this paper. A word is in order, however, about a certain technic all too frequently used by physicians. Because of the personal and social bias against psychiatry even the well-intentioned practitioner may find himself asking a patient, "Would you be *willing* to see a psychiatrist?"

This is in startling contrast to other referrals

in which the comment invariably goes, "You *should* see a specialist in urology or bone disease."

What is heard by the patient and family when a psychiatrist is mentioned is far more than simply a difference in words; it is the contrast between a physician's offering hesitantly and apologetically the services of a specialist of whom he himself is a bit wary, and one who refers the patient to a colleague for whom respect has been enhanced by understanding and professional interchange. Referrals will not be carried out adequately, no matter how clearly defined the criteria, until we in psychiatry show our usefulness to you, and until you who are in general medicine verbalize your criticisms, your fears and your frustrations about us.

The psychiatrist should venture to criticize only if he believes he can improve and clarify. The purpose of this paper is to indicate, on the basis of condition, those patients who should be considered for psychiatric referral. The criteria for referral from a pediatric service to a psychiatric service can be considered in four large categories: (1) diagnostic assistance, (2) management, (3) specific psychiatric treatment, and (4) prevention. What is hoped for, in such a definition of criteria for referral, is not that the number of referrals to the child psychiatrist will be increased, but that psychiatric interrogation as carried out by the practitioner will be enhanced.

Referral for Diagnostic Assistance

Psychiatric evaluation has something to offer early in the consideration of many diagnostic problems. Exemplary is a case in which a twelve-year-old boy recently was dismissed from the hospital. He had been brought to the hospital by the family because of fever and abdominal pain that had been present intermittently for six years, and which had been worse since exploratory laparotomy performed five months previously. The pain was localized to the site of an even older, previous incision, made for presumed appendicitis. Results of examination objectively were negative,

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yet the boy looked pale and apathetic, and he walked in a stooped position, holding his right side in pain. The picture was further complicated by the occurrence of vomiting and loss of weight. A roentgenogram of the small bowel disclosed nothing abnormal. The boy's general appearance, the vomiting and loss of weight and the presence of fever suggested physical disease. The long history in which nothing abnormal had been found, the bizarre gait and the negative results of abdominal examination bespoke emotional conflicts. This was a situation in which pediatric referral to psychiatry was indicated for purposes of diagnosis. Yet parental acceptance was made possible only by a very direct, authoritarian insistence on its need.

In this case the boy's complaint of abdominal pain was, in fact, unusual sensitivity at the site of the first surgical incision. Detailed psychiatric interviewing permitted correlation of the surgical procedure with unusual anxiety about punishment for angry thoughts of the boy toward his father. The pain did not have the characteristic pattern of the usual syndromes of organic pain, yet the vomiting, loss of weight and presumed fever, later disproved, placed the onus of decision as to what to do on the physician who had applied the "functional" label. Continued interviewing made it possible to correlate the appearance of abdominal pain with fear of separation from the overindulgent mother, who incidentally in her anxiety misreported the presence of fever.

This kind of diagnostic dilemma is not unusual. The easy course in this case would have been to perform a third laparotomy. The constructive and medically sounder approach was that of using to the fullest extent the special technic of psychiatry. Thus, money which would have been spent on surgery could be turned into psychiatric treatment; the anxiety and discomfort of another surgical procedure were not added to the existing neurotic problem and the direction of necessary therapy was clarified.

In many cases syncope, fatigue and weakness must be regarded in a similar manner. If any of these are presenting complaints, and if the history does not establish the usual physical causes for these symptoms, psychiatric referral should be considered. The case mentioned at the opening of this paper is an example. For eight years the boy had been a chronic invalid. With each

new diagnosis or treatment program everyone's anxiety increased, including that of the physician. With each lack of improvement everyone became more discouraged. Only after eight long years, with absences totaling two and one-half years of schooling, untold loss of physical and social interchange and continuing conflictual anxiety, was the complaint of fatigue treated as a psychiatric symptom. In this instance, in spite of the extraordinary delay in psychiatric referral, a program of intensive treatment permitted the child to improve sufficiently to return to school.

The problem of headache is slightly different, for there is increasing evidence that children with migraine, as well as those with so-called tension or vascular headaches, should be considered for psychiatric referral. Although there may be vasomotor, migrainous, "allergic" and other sometimes ill-defined factors, the role of emotional problems always should be evaluated. If headache is not related to an expanding intracranial lesion, an effort should be made to define the nonverbalized anger of which headache may be the somatic representation.

The problem of movement disorders currently is an enigma. Both neurologists and psychiatrists recognize this group of conditions as being within the hinterland of the two specialties. If the movement disorder is compatible with the diagnosis of tics or compulsive rituals, psychiatric referral, with careful evaluation of parents and child, is indicated. If the story is that of a bizarre convulsive disorder or one not responding to the usual anticonvulsive medication, the same is true. Proper diagnosis and treatment are possible only if psychiatric factors have been weighed as part of the diagnostic evaluation.

In summary, then, referrals for diagnostic assistance should include:

1. Unusual instances of abdominal pain, particularly if they are associated with bizarre behavior.
2. Headache problems, including migraine, if results of neurologic examination are objectively negative.
3. Syncopal attacks, especially if there is a history of physical brutality in the family.
4. Movement disorders, and particularly instances of multiple tics, pseudoepilepsy or pseudonarcolepsy.

5. Problems of fatigue and weakness, if results of routine laboratory studies are negative.

Referral for Management

Referrals for management include instances of recognized psychiatric import frequently not referred because of a number of odd excuses—their excessive number, the unavailability of psychiatrists, the cost, the family's bias against psychiatry, or, I am sad to say, the assumption that a psychiatrist will only add confusion.

Many are the patients who should be referred. For instance, some children are obese because of parental fostering of their pattern of overeating. Psychiatric evaluation of the parental background may clarify for everyone the use of food as an inordinate symbol of affection, with more satisfactory dietary programming for parents as well as for the child. Diet definitely may be indicated, but so also is planning for increased family activities. On the other hand, some obese children present more disciplinary problems than do children who are affection hunters. When such children are involved, psychiatric evaluation can alert everyone to the need for more consistent discipline; the dietary regimen should come at a later date, since experience shows us it will not be effective until limits on behavior have been strengthened. The same holds among children with anorexia nervosa. Treatment alternatively may be best focused on diet or on emotional conflicts.

Similarly, the management of patients with severe primary dysmenorrhea will be ineffective until family patterns are understood. Recently, we interviewed a fifteen-year-old girl with incapacitating dysmenorrhea requiring forty-eight-hour absences from school, monthly. For four generations the women of this family had had severe dysmenorrhea until the first pregnancy, and had been treated by presacral neurectomy, or the use of a pessary, or cervical dilatation, or deep roentgen rays or narcotic agents. Fundamentally, the problem was one of a continuing conflict between mother and daughter, resulting in highly mixed feelings about the acquisition of the feminine role, of which menstruation is the most colorful symbol. Psychiatric referral for purposes of management permitted proper interdigitation of medication and psychotherapy.

So it is also with unexplained urinary incon-

tinence and with intractable asthma. These are conditions apparently caused by multiple factors; empirically it should be assumed that the failure of the patients to respond to the usual treatment procedures should raise the question of psychiatric evaluation as a step in better management.

In problems of intersex and premature development the psychiatric evaluation should be part and parcel of the routine evaluation, since by the very nature of the physical factors there is in these problems psychiatric tinder already ablaze with conflicts.

The psychiatric problems presented by gunshot wounds, amputations and chronic disfiguring illnesses are ones which eventually will become the treatment responsibility of the practitioner. In the present stage of medical interchange, however, all too few practitioners have become aware of the mourning reaction, the body-image problems and the anger which always accompanies these conditions.

As one little girl said to me, "I know that surgeon did a good job, but I sure hate his guts for taking my arm away."

We know now that not only ineffective rehabilitation but also much of the postoperative pain of such conditions is related to suppressed anger. Few practitioners are motivated to deal with this aspect of treatment. Psychiatric referral should, therefore, be part of the general management program.

Physicians in general are alert to the characteristics of hysterical paralysis, and effectively treat the condition without unusual use of medication or undue fostering of invalidism. The natural course of the disease is such that the rate of symptomatic spontaneous recovery is high. One is left, then, with the problem of selecting those patients who require immediate psychiatric treatment and those best treated by the tincture of time. Herein lies a service which the child psychiatrist can offer.

The problem of mental retardation is in much the same province. Practitioners evaluate with amazing accuracy the intellectual level of children without the help of psychologic tests. There is, however, a significantly large group of children who function at a retarded level because of severe anxiety and who need specific psychiatric treatment as well as a management program.

Similarly, the schizophrenic child should have

the combined counsel of practitioner and psychiatrist for proper management. With some basis for the hope that hospital facilities for psychiatrically disturbed children in Minnesota will be increased, early diagnosis and outlining of management in the field indicated become imperative.

In summary, then, children should be considered for referral for management purposes if they have: (1) obesity or anorexia nervosa, (2) incontinence or dysmenorrhea, (3) intractable asthma, (4) endocrine sexual problems, (5) physically disfiguring conditions, (6) hysterical paralysis, (7) mental retardation, or (8) schizophrenia.

Referral for Treatment

Many conditions are recognized as falling entirely within the psychiatric realm, but even so, referral frequently is delayed because of the presumed difficulty of treatment, or the distance involved, or the lack of hospital facilities. These realistic matters will be overcome only if we diagnose, refer and treat as correctly as possible; only if realistic pressure is continually placed on the psychiatrist will the specialty and its facilities expand adequately.

For many years, referral of the acutely psychotic patient was considered a necessary evil. With the increase of knowledge concerning proper treatment, referral now has become an emergency. Resolution of psychotic symptoms now is possible, provided the child and parents are seen quickly, before there is loss of clues by which effective resolution is possible.

The treatment of the delinquent child also has been refined. Rare is the time when we do not have such children and their parents in therapy. It is a long and arduous task for all concerned, but it is also highly rewarding if success is attained. Carefully evaluated psychiatrically, those delinquent children whose problems seem more hopeful of solution should be selected for treatment. Typical are two patients recently dismissed from therapy. The boy, now sixteen years old, was referred because of possession and sale of drugs; the girl, now fifteen years old, for truancy and sexual misbehavior. The delinquent child should be referred for treatment evaluation, and should not be dismissed as a constitutional psychopath.

The child more than four years old who soils

himself or wets the bed, the child who misses school because of poorly explained physical symptoms or severe anxiety and the youngster with attacks of hyperventilation frequently are viewed as "going through a stage"—and so they are, but it is a stage of neurotic illness. They may overcome these symptoms but acquire others more severe if psychiatric treatment is not provided. The apparently spontaneous abatement of symptoms is deceptive, and should not be confused with cure.

Typical is a girl of nine years, referred for encopresis of five months' duration. Examination revealed a child functioning on the level of a five-year-old, unconsciously smoldering with jealousy toward her two younger siblings, withdrawing from playmates and viciously expressing her angry defiance by the pattern of fecal soiling. Interrogation of the parents about their backgrounds and the background of the child in play sessions revealed the conflicts for which successful therapy should be possible. Six weeks of treatment now should free the girl both of symptoms and of the need to remain immature. Once freed up emotionally, she can take advantage of the natural developments in living which push toward independence and growth.

Another group of children in need of immediate short-term therapy are those who exhibit infantile behavior after surgical treatment or trauma.

Typical is a thirteen-year-old boy operated upon for cerebellar tumor. Postoperatively he was mute, unable to care for himself in bed in spite of the fact that results of a neurologic examination were essentially negative. Observation revealed a hovering, ever-present, obese, well-meaning but far too indulgent nurse-mother who was conveying to her son the unconscious wish that he remain invalidated and incapable. The psychiatrist insisted that the mother have no extra visiting hours, and that she work part time at another hospital. The boy was told very directly about what we considered the problem to be, and within seventy-two hours he was discussing his awareness that his mother had infantilized him. It is probable that some spontaneous adjustment would have taken place slowly, but psychiatric intervention speeded up the process and permitted all concerned to discuss their feelings and attitudes.

One could continue with untold examples. Suf-

fice it to say, in summary of this part of the paper, that children who are delinquent or are afflicted with encopresis and enuresis, acute anxiety and problems in discipline, school phobia, attacks of hyperventilation, sexual aberration, acute regression, depression, obsessive compulsive neurosis or acute psychosis should be referred routinely for psychiatric treatment evaluation.

Referral for Prevention

There is another group of criteria for referral, best labeled "preventative." The child who is unusually modest or unusually destructive in the office, or one who cannot be separated from his parents, represents a case in point. Psychiatric symptoms in themselves may not be present, but family difficulties certainly are. The *insistence* of the mother on the presence of some seriously morbid condition in the youngster constitutes another instance in which pediatric referral to psychiatry should be considered. Such mothers have a strong, unconscious destructive wish toward their children which may actually destroy, either directly or by enforced invalidism. Of equal import are the family patterns of brutality, sexual promiscuity, delinquency, excessive immodesty or

unusual disciplinary vacillation. These are behavioral patterns which reflect neurotic maladjustment within the family, and they cannot fail to influence the development and welfare of the child. The time is at hand when practitioners should offer pediatric referral to psychiatry for evaluation of the effects of such behavior, just as they would evaluate the contacts of a tuberculous patient.

A word should be said about the use of drugs. It is a sensible rule-of-thumb that a child who needs sedatives or tranquilizers is one who needs psychiatric referral. In the absence of definitive help, medication is a necessary evil, but it should be a temporary expedient only.

Summary

Pediatric referral to psychiatry should have a fourfold goal, which would include diagnosis, management, therapy and prevention. The basic requirement for referral is that of the practitioner's sensitivity to the importance of emotional conflicts in disease. The psychiatrist must enhance such sensitivity by making himself more easily available and by increasing his efforts to be of practical and immediate assistance.

PROBLEMS OF SELECTION IN STUDIES BASED UPON HOSPITAL AND AUTOPSY DATA

(Continued from Page 15)

burden of proof as to the non-existence of important selection forces lies with the reporting investigator. It is he who must present a convincing case. Data which may be given one of two opposite interpretations, depending upon the existence or non-existence of selection forces which are not even investigated, must be considered of questionable value.

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The Physician as Scholar and Humanist

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FOR MANY years I have observed the fine creative output of your school in medical science and medical education. It was, therefore a great pleasure to be given this opportunity to close the geographic gap and visit you in person, though the pleasure was somewhat neutralized by an anxious search for a justifying message. Timothy Dexter, a famous character of Newburyport, Massachusetts, once sent a shipload of coal to Newcastle on the advice of a humorous acquaintance. The coal arrived during a miners' strike, and the voyage was unexpectedly profitable. As I bring my coal to this Newcastle, I can hope for no such fortunate scarcity.

Since this Convocation is, in part, a welcome to the incoming class of medical students, it is not inappropriate to congratulate the newcomers on their choice of a profession. And to explain why I, after a long and varied experience, can say with undiminished enthusiasm that medicine is the best lifework of all. No other profession has such a broad spectrum of opportunity, for it presents two (I am tempted to be dogmatic and say *the* two) most exciting human potentials: (1) the gratification of man's curiosity, his urge to know and to understand the phenomena of nature; (2) the desire to be of service to his fellow man—on one hand, the pure scientist widening the periphery of our knowledge; on the other, the family physician dispensing healing and comfort. The extraordinary quality of our profession, however, lies in the fact that one is not forced to confine himself to either end of the spectrum, for a variety of combinations of the investigator and the healer is not only possible but usual, and, indeed, both elements are necessary for the best practice of medicine. This involvement of the whole spectrum is particularly evident in a medical school where laboratories and wards are side by side not only geographically but, at long last, intellectually.

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Time and interest can be divided between the two areas in many different proportions according to taste and opportunity.

Furthermore, the physician can be a teacher. Teaching is the shortest route to learning. The physician can concern himself with community problems as a public health officer, and the industrial specialist plays a significant role in economic affairs. If an interest in administration appears, the physician may head a hospital, become a city or state official or be concerned with a health insurance program.

On the material side, it is recognized that medicine is the most stable occupation in almost every part of the world, for social, economic and political upheavals usually leave the physician relatively untouched. During the great depression of the thirties his budget was cut, but he suffered no intolerable idleness, and he had incredible opportunities for the generous gift of his services. But I hasten to add that any young man or woman who enters the study of medicine with a primary interest in its financial rewards is doomed to disappointment. The scientist is never adequately recompensed, and the practitioner works very hard for a comfortable living. As Christian found in *Pilgrim's Progress*:

"They came on a delicate plain, called Ease, where they went with much content, but that plain was but narrow so they went quickly over it. Now on the further side of that plain was a little hill called Lucre and in that hill a silver mine; which some . . . had turned aside to see . . . and could not, to their dying day, be their own men again."

The keynote of the multi-faceted profession of medicine is dedication; with the loving and earnest devotion which this implies, no life offers more joy and satisfaction.

The envy that I have had each year for the young student about to cross the threshold of medicine for the first time has in recent years been tempered by the realization that medical science and medical education have been offering all of us many new thresholds. This is a period of greater ferment

than any since Abraham Flexner's famous report acted as catalyst. Curricula are being scrutinized and extensively revised, new disciplines created and old ones discarded, the content and perimeters of today's traditional departments would be almost unrecognizable by a freshly graduated student of 1910. There have been striking changes in pedagogical techniques necessitated by the tremendous advances in the scientific world. A slow, and not unsatisfactory, evolution in these techniques for producing a physician has taken place by the wholly appropriate use of the experimental method. Yet there is a current demand for greater velocity in this evolution.

This urgency is the normal result primarily of healthy and impatient dissatisfaction with things as they are. But it is encouraged to a certain extent (and understandably so) by the dispensers of funds, both public and private. These agencies usually prefer to back a relatively new departure than to enrich a pre-existing, even though successful, project—a new program, rather than an old institution. Such support may induce an emotional commitment which might tend to limit the validity of the experiment. But in addition, it may stimulate in this fertile soil of change, tangential and spectacular alterations a little beyond the spirit of the experimental method, and too often oriented to the hobbies prevalent in the source of financial support. Though it is better to go too fast than to stand still, the greater the rate of advance, the greater the necessity for a thoughtful examination of our goals.

The first goal which I wish to discuss is our responsibility to the undergraduate medical student; the second, less easy of specific definition, is essentially the role of the internist as teacher and practitioner.

For simplification (and I am afraid that I shall be guilty of continual oversimplification), one may divide the pedagogic procedures of medical school into education by osmosis depending on exposure to a proper environment, education by appropriately stern discipline, education by active training of the mind while imparting information and, finally, development of an appreciation of the philosophy of science through participation in research. A further function of medical school (and in some respects its highest function) is the discovery and stimulation of talent. Creation of an eager curiosity about man and nature is a sure guarantee of the students' continuing growth and

there is no greater contribution to the advance of medicine than the cultivation of an original and insatiable mind.

The goals of training the mind and participation in research will receive my main emphasis, but a brief amplification of the other points is necessary for their dismissal. A student's observation of his environment is the strongest force for fostering his capacities for tact, compassion and a sense of responsibility. He will respect, ethically, as well as scientifically, those values which his faculty respects. The finer human qualities so important in a physician are largely inborn, but they can be suppressed or they can be stimulated by the general climate of a medical school.

The grave responsibilities of patient-care require the strictest self-discipline, and the undergraduate period should initiate this type of behavior. While example plays a large role, active external discipline is a valuable adjunct. The student should realize, for example, that, regardless of his academic standing he will be summarily expelled if he inexcusably neglects his duties to a patient assigned to his care. However, there is strong support for the opinion that premature deputation of such clinical responsibility, as is done in certain home-care programs, is an unwise approach.

It is in no derogation of the important functions that I have just mentioned to state that the basic goal of a medical school is the production of scientists and, when possible, scholars. The outstanding characteristic of a scientist in any field is disciplined intellectual power; the power of critical observation and sustained attention, the power of analysis uncluttered by irrelevancies, the power to organize and express ideas and the imagination to see their possibilities. Granting that some of these qualities also are more or less inborn, the major portion can be evoked and developed when proper leadership is afforded.

"Scholar" is a more generic term applicable to the humanities as well as to the sciences. The dictionary is disappointing so I beg your tolerance for an improvisation. A scholar is one who has not only an understanding of his discipline in depth but is preoccupied with an eager pursuit of even more profound understanding; he is not satisfied with his solid foundation of knowledge, he has a divine urge to search further.

In medical school we should strive to *produce* medical scientists and to *discover* medical scholars.

(Turn to Page 23)

The progressive enlightenment of medicine depends upon the physician as scholar, the sound practice of medicine upon the physician as scientist.

Although none would deny that the imparting of factual knowledge is a major objective, yet those of us who entered medical school almost fifty years ago have observed a steadily declining emphasis on lifeless facts *per se* and an increasing concern with the mechanisms of disease. Furthermore, there has also been a decreased emphasis on the training of specialized skills, for it is generally accepted that these should be perfected, in main, during the graduate residency periods. However, a competent teacher finds no mutual exclusiveness between the communication of information and the development of scientific critique. But the continued professional growth of a physician depends on the way he has learned to use his mind rather than on the facts that he was able to store in it during his undergraduate years. Science transforms the static into the dynamic and adds the delightful savour of understanding. The joy of understanding is both the closest rival of the joy of service and its most effective partner. Francis Bacon was aware of this emotion when he wrote 350 years ago, "For all knowledge and wonder (which is the seed of knowledge) is an impression of pleasure itself."

The fundamental requirement for training the student to be a scientist is an atmosphere of research. In every department he should find clear evidence of a driving intellectual curiosity and, in addition, he should be told the exciting story of significant scientific advances so that he may experience vicariously the pain and pleasure of exploring the unknown. He will thus derive a familiarity with the type of logical thinking and the rigid quality of experimentation that have been successful in revealing new facts and their relationships. The amenability of the basic sciences to such an approach is obvious, but history-taking lends itself equally well to introducing scientific critique. An analysis of the multiple components that appear in the course of a clinical appraisal presents an excellent opportunity for exploring the principles of logic.

However, no pedagogic brilliance can equal the value of personal participation in a research problem. Each academic year should provide free time, and adequate space should be available to the interested student. The faculty can arouse

this interest and point out the high practical value of research experience to the continuing development of a physician. It is my opinion that time used in this manner will lay a more effective foundation for the practice of medicine than equivalent time spent visiting patients in their homes or acting as apprentice to a general practitioner.

Norman Campbell writing on "Science, Imagination and Art" in a recent number of *Science* makes this inspiring comment: "There are degrees of scientific as well as artistic imagination. But the least of us can share in some small measure these achievements. A man need not abandon all pretensions to the proved title of artist because he could not design the Parthenon or write the Fifth Symphony. Most of us who have attempted to advance science have had our all too brief and passing moments of inspiration; we have added a single brick to the mighty structure or finished some corner which the master in his impetuosity has overlooked. And though our tiny efforts rightly pass almost unnoticed by the rest of mankind, they have a value for ourselves beyond what we can tell; one instant we have stood with the great ones of the earth and shared their glory."

I recently spent an evening with a small group of our Columbia students talking informally about the value of research. A recurrent question was, "How do we go about it?" May I pass on to the incoming class the practical suggestions that arose therefrom? A small number of students have unusual talents or special experience which lead them at once to an appropriate opportunity; they are fortunate. Among those less clearly oriented, will be a few who enjoy and are competent in a definite technical approach, such as chemistry or microbiology. They should seek an investigator using this approach and attach themselves to him. Individuals with no special interest or experience, yet with a desire to participate, may choose a member of the faculty whom they find inspiring and follow his intellectual leadership.

For those disliking any form of laboratory work, there remain at least two more avenues of research. First, is clinical study. While much scrutiny has been given to the natural history of disease, there are still many gaps in our understanding. The student may not fill one of these gaps successfully, yet probing deeply into any subject is a direct road to scholarship. Another fascinating avenue is found in an examination of the history of some

major advance in medicine, searching the library for original papers, trying to discover work as yet unnoticed.

Both clinical and historical studies may give the student an appreciation of the difficulties faced by an investigator, the rigid critique required for evaluation and the remarkable range of man's imagination. A further fruit of such studies might be an idea that would stimulate experimental exploration. To quote Norman Campbell again, "The scientific imagination . . . must come from direct and intimate contact over the widest possible range with the great original works which represent its noblest expression." Finally, I cannot emphasize too strongly the tremendous value derived from writing up the results of such investigations with careful critique by a member of the faculty, not necessarily with publication in mind but for the discipline involved.

Before turning to a consideration of the internist, I wish to comment on two myths that crop up repeatedly as one seeks to improve the scientific quality of medical education and medical practice. They are so absurd that it strains one's credulity to believe that they are sincere responses. These myths are the "cold-blooded scientist" and the "ivory tower." As to the icy intellectual, I have observed many scientifically trained clinicians and, also, men less fortunate in this respect, and, as I have stated on other occasions, I have never seen a warm, sympathetic person frozen by a research career or a cold, tactless individual thawed by general practice.

The "ivory tower" is more subtle, less clearly definable. Its usage seems to imply, not the widened perspective of a high elevation but isolation from earthy affairs, grudgingly conceded to be located in a durable and lovely encasement of ivory. The whole concept represents a last phase of the losing struggle of the physician as artisan against the growing influence of the physician as scientist, best exemplified in full-time academic medicine. The medical artisans seem tragically unaware that most of the recent remarkable advances they employ in the practical everyday care of a patient have come from "ivory towers." Moreover, anyone familiar with the life of a full-time clinical professor realizes that one of his chief problems is to garner enough time from purely clinical duties to provide adequate periods in his none-too-isolated tower. Indeed, a serious threat to the advance of medicine today may be found

in the widespread pressure on the clinical faculty to give up strict full-time status and support themselves or their departments by engaging in private practice. Though this tendency is understandable in a period of rising costs, it is a deplorable retrogression.

But there are some criticisms of modern medicine that have more substance. Peter Drucker, writing philosophically in *Harper's Magazine*, suggests that medicine is advancing so fast that it is rapidly "becoming unteachable." He says, "Virtually every experienced teacher of medicine I know wonders whether the young medical school graduate of today . . . is as well taught and as well prepared as his much more ignorant predecessor of thirty years ago." He continues: "The reason is simple. Medical schools are still organized around the idea of disciplines as static bundles of knowledge. But, where a hundred years ago there were at least six or seven such 'bundles,' there are perhaps fifty today. Each has become . . . a full blown 'science' which takes a lifetime to master."

I cannot imagine where Drucker found the so-called "experienced teachers of medicine" who were in such error about the comparative preparation of today's graduate and those of thirty years ago. But, as is usually the case with any criticism, there is a germ of truth. It is true that unavoidable scientific splintering is a handicap to balanced medical education, and there is general expression of anxiety that the sick person is overlooked in the swarm of specialists.

These serious problems can not be resolved by curbing the trend toward specialization, for only through many routes can the biological complexity of man and his diseases be approached effectively. When even the basic sciences are increasingly subdivided, specialization in the clinical sciences involving the total individual appears even more inevitable, indeed is irrevocably accepted. Granting that he possesses an encyclopedic mind, the practitioner so endowed would lack technical skills which only long experience can perfect. It is banal but convincing to assert that no one would wish to be bronchoscoped by a psychiatrist.

The genuine hazards of specialization and our concern for the whole person are parts of an identical problem. It is my admittedly biased opinion that the answer lies in the integrating role of the internist. (I include the pediatrician, of course). The inaccurate term, internal medicine, designates a remarkable discipline. Its active

preoccupation with the patient as a person and its exceptional concern with biological mechanisms in health and disease make it the logical candidate for the keystone of the medical arch both in education and in practice. In fact, the arch is already completed in many medical schools and, through group practice, in some communities.

Internal medicine came of age with the establishment of full-time clinical departments. When I served my medical clerkship at Johns Hopkins in 1914, I saw little awareness of the patient beyond his physical signs which were obtained with meaningless virtuosity. I well remember the elegance of wrist motion in percussion that was my unattained model. The chief goal was to predict the gross anatomy of the autopsy. The anatomical pathologist reigned supreme.

Contrast this picture with a modern medical clerkship where the patient is studied as a person, his social, economic and emotional characteristics held as important as his physical status which, in turn, is precisely evaluated by accurate techniques; specialists visit in consultation, their contributions assembled by the internist, and all the data finally developed into an individual pattern. It is difficult to be certain as to the dates or the forces that produced this mature and inclusive discipline which we call internal medicine. However, if I may be permitted the personal testimony of one who has had a ringside seat (with an occasional round of my own) I shall assert again that it is another of the wonderful results of the direct exposure of clinical problems to the full-time medical scholar.

In the first ten years after academic medicine was instituted at Columbia and the Presbyterian Hospital, several steps were taken which gave evidence of an appreciation concerning the important role of the patient's personality. All these steps were supported, happily, and a few were originated by those of us who were called "laboratory men" (with no intent to praise). In the early 20's arrangements were made with the professor of psychiatry for routine instruction of the clinical clerks (on medicine) concerning the emotional problems of their patients. Shortly thereafter psychiatrists assigned to the Department of Medicine began to study the influence of personality on disease. Out of these studies arose the stimulus that led Flanders Dunbar to be Editor-in-Chief of *Psychosomatic Medicine* and one of our internists to represent his field on the editorial board.

At about the same time, George Draper, talking and writing of the various "panels" of a patient appraisal, added the panels "personality" and "constitution," an original and pioneering concept which thirty years later was given the term, "comprehensive medicine."

The exposure of the patient to the full-time scholar's critical imagination inevitably led to a recognition that the patient's personality was of equal and often greater significance than the disturbed physiology. Parenthetically, I would suggest that this thoughtful recognition of the broad area of integrative responsibility has been appropriated for crusading purposes under the banner "comprehensive medicine" with the emotional overemphasis typical of such a reaction.

Our appreciation of the total individual was greatly enhanced by the accurate and easily available quantitative techniques developed in the research laboratories, many of them in clinical departments. As a surprisingly complete physical appraisal became possible, the gaps in understanding due to psychological or environmental influences could be evaluated more clearly, and the etiological role of the emotions was less a matter of guesswork. So, gradually, as a result of comprehensive understanding (and I prefer to use the term in that association), the humanistic instincts characteristic of the healer from time immemorial were afforded enlightened and effective usefulness. The prompt impact of this development on medical education was guided largely by internal medicine.

As undergraduate medical education has concentrated more on training the mind and less on indoctrination of skills, a rather profound reorientation of curricular emphasis is in progress. Time spent on learning static facts, such as the origin and insertion of muscles, is devoted to the biology of the cell, physiology is concerned more with human reactions than those of the frog, and pathology emphasizes the dynamics of disease. But the *most* important development has been a general unifying tendency with co-operation between all departments, joint seminars and clinics, and interchange of faculty members. As departmental walls crumble (I speak only of pedagogical walls) and common educational goals appear, the integrating potential of internal medicine invests it with the leading role in an evolving medical school. All clinical departments now have active roots in the basic sciences, but the deeper and

more widespread ones of medicine and its intimate contact with all the other clinical branches gives exceptional insight to the medical man with corresponding educational perspective. I hope that this presentation of the functions of the internist has not appeared to be an arrogant exaggeration; such functions seem to me a natural corollary to the broad role of an integrator. Furthermore, the internist is more often privileged to dig deeply into some area—one qualification for a scholar.

The physician has been a healer and often a humanist for centuries. He has fought unarmed by knowledge and hobbled by tradition. Though he brought comfort to the mind, often he did harm to the body. The leading dictionary definition of "heal" is "to make whole." At last we are able to touch that goal. Here again the helm is usually assigned to the internist because he is better trained as a pilot than the rest of the crew. Though he may lack the technical skills to fix the radar, repair the generator or adjust the diesels, he must understand the principles under which they operate. It is a complicated and exciting responsibility.

The internist, thus, is cast as the family physician, the keystone of the clinical arch. The family doctor of fifty years ago was fortunate in knowing his patients before they consulted him, his approach was intuitive, based on general familiarity with his neighbors. A well-trained family physician of today can take histories that are more illuminating as to his patient's personality and environment than were they to be his next-door neighbors. Moreover, the investigation is guided by a technical knowledge of psychology and an understanding of emotional influences on health. Sooner or later, no facet of the patients' lives will have failed of scrutiny. This procedure is not only more sophisticated but more effective than an intuitive assembly of gossip. The modern internist can give as much warmth and compassion as his predecessors, but he can add to these important gifts an extraordinarily detailed scientific appraisal. In no sense do I discount the value of intuition, for

the complexity of modern medicine makes even greater demands on this rare capacity for the unconscious analysis of experience.

A humanist has been defined as "a student of human nature or of matters of human interest; one versed in human affairs and relations." Considering the physician as humanist, it is necessary to extend these qualifications, for the physician as humanist requires also a deep affection for mankind and a profound respect for the dignity of man. This is something beyond a warm friendly attitude toward patients. The application of this philosophy to a single individual seeking help needs little discussion for no other member of a community is afforded the variety of opportunities for service that fall to the lot of the physician. No one else is given as honest or as complete a picture of the individual. The doctor must be "a student of human nature," and his experience guarantees that he will be "versed in human affairs." By our dictionary, therefore, he is a humanist; if he really cares for his patients (and every good doctor does) he has then completely fulfilled our specifications.

The more difficult problem for the physician is the application of his humanistic responses to groups, to the community at large. In strictly medical affairs there can be no argument, he must seek and exercise leadership. But in sociological, political and economic realms, he will find himself torn by conflicting motivations. It would be presumptuous of me to offer advice in this delicate area. The physician represents a learned and respected profession, he is a citizen, and he is close to the hearts of many of his fellow-citizens. His consequent influence may be enormous, and his conscience must tell him how and when to utilize it, for his responsibility is commensurate with his influence.

Finally, we must never forget that the physician's influence and his capacity for using it *wisely* depend on the fusion of the healer and the scientist, of the humanist and the scholar. To internal medicine falls the privilege and responsibility of guiding that fusion.

EFFECTS OF LITTLE STROKES

Abdominal symptoms of little strokes may easily confuse the diagnosis of cerebrovascular accident in the elderly patient, says Dr. Walter C. Alvarez in a discussion of the small apoplexies.

A little stroke can produce such varied symptoms as nausea and vomiting, simulating acute indigestion or Ménière's syndrome; irritability of the stomach; and a

"burning" sensation in the abdominal wall. Quite often such a spell will be followed by rapid aging, some loss of memory and ability and a noticeable change in character and personality.—ALVAREZ, W. C.: The abdominal symptoms of little strokes, *Geriatrics*, 12:164 (March) 1957.

Detection and Treatment of Noninvasive Carcinoma of the Cervix

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CONTROL of carcinoma of the cervix is now within the reach of the medical profession. With the introduction of a planned screening program, the danger from invasive carcinoma of the cervix could be largely eliminated. Instead of a salvage of 50 per cent of women with carcinoma of the cervix, which is now the experience in better treatment centers throughout the world, 100 per cent of women so afflicted could be cured by relatively simple measures. This would mean a saving of thousands of lives each year and a release from untold suffering; it also would obviate the expense involved in the radiation or surgical approach currently necessary to control carcinoma of the cervix. It is the purpose of this paper to present a discussion of the cytologic technique that makes the previous statements credible, to consider the interpretation of its results, and to review some of the problems raised in the course of its application.

Cervical Cytology

An understanding of cervical epithelium is essential both in obtaining and interpreting proper diagnostic cytologic smears. It is a well-established fact that the cervical squamous epithelium undergoes cyclic changes during the menstrual cycle. It also continuously sheds cells, as does all similar squamous epithelium. The squamous epithelium of the normal cervix has an orderly pattern from the basement membrane to the surface. The cells resting on the basement membrane are columnar and are distinguished by large nuclei and little cytoplasm. Squamous cells are referred to as superficial or basal depending on their location near the surface or near the basement membrane. As the superficial cells are shed, they are replaced by proliferation of basal cells. The daughter cells are pushed away from the basement membrane

and gradually reach the surface. During this process, they acquire more cytoplasm in which keratin granules develop; at the same time, the nucleus becomes smaller and pale.

In the normal smear, both basal and superficial cells may be present, the latter being predominant. These superficial cells are large and angular, with a small central nucleus. They are likely to be wrinkled and folded. The cytoplasm stains faintly and may be either basophilic or eosinophilic. The basal cell varies greatly in size but is somewhat smaller than the superficial cell. In general, it is oval or rounded. The cytoplasm is usually basophilic, and the nucleus is relatively large and granular. In precancerous states, some of the cells shed are not typical of fully developed surface cells.

The difference between atypical benign cells, such as may occur in leukoplakia or in inflammatory hyperplasia, and the malignant cells in carcinoma *in situ* is not always clear. Little is known about the development of carcinoma *in situ* of the cervix. It is even difficult to determine whether growth initially is sluggish, as is the case in carcinoma of the skin. A lag of eight to ten years may occur between the initial appearance of carcinoma *in situ* of the cervix and the time of invasion. In the most typical form of carcinoma *in situ*, malignant changes are present in all the cells of a segment of the squamous epithelium. The cells are not keratinized and are spindle-shaped, with enlargement of the cells of the basal layer. Mitotic figures are generally numerous. Great variation often exists in the size of cells, and some multinucleated cells may be present.

The differences between benign and malignant cells are mainly matters of degree rather than of kind. The nucleus of the malignant cell tends to show alterations in shape, abnormalities of the chromatin and enlargement of the nucleolus; the ratio of the nucleus to the cytoplasm is increased. The cytoplasm is secondary to the nucleus for diagnostic purposes; the important features are the amount of cytoplasm and the shape of the cell.

From the Section of Obstetrics and Gynecology, Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

Read at the meeting of the Northern Minnesota Medical Association, Hibbing, Minnesota, September 6, 1957.

The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

The Cervical Smear

There is, at the present time, a confusing multiplicity of techniques for obtaining cervical smears. Only the one in use at the Mayo Clinic will be described here. This is not to say that other techniques are not suitable, but this method has been satisfactory in the experience of my colleagues and me. After exposure of the cervix with a speculum, an Ayre wooden spatula is inserted into the cervix and vigorously rotated. The material on the spatula is then smoothly smeared on a glass slide and immediately fixed in 95 per cent alcohol. Care is taken not to allow drying in air before fixation. The slides are stained with hematoxylin and eosin.

The stained slides are examined microscopically, with the aid of a mechanical stage, by a trained technician, who marks questionable or malignant cells. A pathologist, trained in cytology, studies the marked slides. He also checks some of the unmarked smears to determine whether the specimens are adequate and to spot check the technician scanners. If the slide is improperly prepared, neither the cytologist nor the cytotechnologist can be of much assistance. The accuracy of their report depends on the quality of the material submitted.

The cytologist is, of course, the key figure. He must not only be a pathologist but also must have considerable training and interest in the relatively new discipline of cytology. His right hand is the cytotechnologist, who relieves him of much of the work load. At present, many cytotechnologists are being trained throughout the nation; this training program is in large measure subsidized by the American Cancer Society.

Interpretation and Results of Cervical Screening

Many terms are used to report the findings of a cytologic study. The categories we employ are as follows: group 1—negative; group 2—probably benign; group 3—suspicious; group 4—probably malignant; group 5—malignant.

If a group 3, 4 or 5 report is obtained, the next step always must be cervical biopsy. This may consist of multiple punch biopsies of the squamocolumnar junction or study of tissue removed during cold conization. The diagnosis of carcinoma *in situ* of the cervix must be made from this material. If confirmation is not thus obtained in the presence of frankly positive smears, the wisest course then may be simple hysterectomy or removal of the offending cervical stump so that the com-

pleted specimen can be checked by the pathologist. This does not apply when the report indicates only possibly suspicious cells or when the presence of associated pathologic lesions of the cervix may explain the atypical cells in the smear.

During the past few years at the clinic, the cytology program gradually has been expanded as cytologists and cytotechnologists became available, so that soon my colleagues and I hope to be able to offer the test to all women more than twenty-five years of age who are examined at the clinic. From 1948 through 1953, some 30,310 smears were examined, resulting in the eventual diagnosis of 270 cases of carcinoma *in situ* of the cervix in women who had no gynecologic complaints. This is an incidence of 8.9 per 1,000. In repeat smears obtained at a later time on the "negatives" in this same group, the incidence of carcinoma was only 1.7 per 1,000, which is a strong indication of the importance of the screening technique.¹ An occasional false positive result is still obtained but these are much less to be dreaded than the false negative result, which sends a patient on her way falsely reassured about her physical condition.

Treatment

After the diagnosis of carcinoma *in situ* of the cervix is made, the question arises concerning the proper treatment to be instituted. The gynecologic literature is full of varying treatment programs. From their multiplicity, it is obvious that much remains to be learned about this particular lesion. For example, a frankly positive smear substantiated by biopsy in a woman past thirty-five years of age who has had several children means hysterectomy. But what of the recently married nineteen-year-old girl who is anxious to have a family? Is it safe to allow her to have one or two pregnancies under observation with repeated smear and biopsy? The easy course for both physician and patient is immediate hysterectomy. But with a co-operative and stable patient and a conscientious physician, surely some of these girls can be allowed the privilege of motherhood. Nowhere is the physician-patient relationship more important than in such instances.

The treatment of carcinoma *in situ* of the cervix follows three general trends, namely observation, limited therapy or hysterectomy. The last trend far outweighs the first two. Under limited therapy,

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The Use of Continuous Suction-Drainage for a Variety of Surgical Wounds

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SURGICAL wounds with actual or potential dead-space present a distinct problem to the surgeon in that they tend to increase morbidity, prolong hospitalization and favor the development of the wound infection. The problem can be solved in most instances by the use of continuous suction-drainage in such wounds. This method of management is far superior to the use of wick drains, packing or pressure dressings. It is comfortable for the patient and it permits the surgeon to perform a primary closure of wounds, which he might otherwise elect to leave partially or completely open for secondary healing.

We have used continuous suction-drainage in the management of a wide variety of surgical wounds over a period of five years or more, having originally read of its use in radical mastectomy wounds. We found continuous suction-drainage very satisfactory for the management of the wound of a radical mastectomy; the method prevents the accumulation of serum, permits immediate active motion of the extremity on the affected side, and eliminates the need for bulky compression dressings. This technic, together with primary closure, also proved equally satisfactory for other troublesome wounds, such as the perineal wound of an abdomino-perineal resectomy; pilonidal cystectomy; radical neck dissection; herniorrhaphy for huge scrotal hernia; hydrocelectomy, and other wounds with large areas of potential dead-space.

The technic for continuous suction-drainage is quite simple. We use one or two polyethylene tubes, depending upon the size of the wound, sizes 13 to 16 F. Multiple lateral perforations are made in the tubes. The tubes are inserted

into the depths of the wound and anchored securely to the skin incision. The wound is completely closed. We often elect to use no dressing except a thin layer of cotton which is stuck to the incision with an ether-benzoin solution. This dressing eliminates the need for adhesive tape and bulky, restrictive dressings.

Continuous suction is applied to the polyethylene tube in the postanesthetic recovery room and continued for forty-eight to seventy-two hours, or more, as indicated. Any type of nasogastric suction machine that supplies continuous suction is satisfactory for the wound suction. The suction is discontinued temporarily whenever necessary to permit ambulation of the patient (full activity on the part of the patient is encouraged). A simple dry dressing is applied over the site of entrance of the suction tube when it is removed, but the cotton-benzoin dressing is left in place until one is ready to remove the skin sutures.

We also use this same type of simple continuous suction-drainage within the abdomen or deep cavities when excessive drainage is expected. For example, the continuous suction technic is useful in draining a raw, denuded pelvic cavity; a pancreatic stump or an ulcer bed deep in the pancreas; an indurated duodenal stump which is not as securely closed as usual or a uretero-pelvic or ureteral plastic procedure when excessive leakage of urine is anticipated.

When this technic is used for intra-abdominal or deep cavity drainage, we often encase the polyethylene tube within a rubber wick drain, making, in effect, a modified Babcock sump-drain.

The simple technic described above is advocated for the management of a wide variety of troublesome surgical wounds. It decreases morbidity due to wound complications, permits a primary closure of wounds which otherwise would be left open for secondary healing, and greatly simplifies wound care.

From the Austin Clinic, Austin, Minnesota.

Presented at the Southern Minnesota Medical Association meeting, Lake City, September 9, 1957.

Case Presentations

Carcinoma of the Stomach Complicated by Pregnancy

Report of an Unusual Case

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THE following case of carcinoma of the stomach complicated by pregnancy is of particular interest.

The pertinent history begins at the Mayo Clinic in 1947 when the patient was twenty-seven years of age. She complained of epigastric distress that had been present for about one year. The patient presented a nonspecific type of history but had noted that the distress was associated with occasional nocturnal vomiting. Results of general physical examination and laboratory examinations, including x-ray examinations of the gall bladder and stomach, were within normal limits. The only abnormal finding was absence of free hydrochloric acid in the gastric content following a test meal. No evidence of organic disease was discovered, and a trial of dilute hydrochloric acid with meals was suggested.

In September, 1952, at her home in Lake City, the patient complained of gaseous distress, belching and rather severe cramplike pains in the epigastrium with associated vomiting, which often awakened her at 5:00 a.m. Relief was obtained by drinking milk. Roentgenograms of the gall bladder disclosed normal conditions but gastric roentgenograms showed a definite deformity in what was interpreted to be the duodenum. The patient improved promptly on a modified Sippy regimen. In December, 1952, she was found to be pregnant, her last menstrual period occurring October 23. She continued faithfully to follow her ulcer diet and remained asymptomatic until about the last week in March, 1953. At this time severe pain localized to the left side of the back developed. She was hospitalized at Lake City from March 30 to April 2, during which time the pain was controlled by narcotics. It soon subsided and she was released only to return to the hospital in twenty-four hours because of recurrence of the pain with nausea and episodes of vomiting. Because of moderately severe anemia she was given 500 cc. of whole blood on April 15. Analysis of the stools revealed a trace of blood. On April 15 also, the patient noted a recurrence of mild, dull boring pain in the epigastrium. The pain was similar to the pain of the ulcer. Because of the

continued severe pain, this patient was transferred to the Mayo Clinic on April 15.

One observer at the clinic noted that the pain seemed to occur in attacks, four of which had occurred since April 1. The pain was located in the region of the left flank, and narcotics were always needed for relief. A complete review of the systems was entirely negative. There had been no chills, fever or urinary symptoms. There was mild tenderness in the middle of the back slightly to the left of the spinal column. Findings on pelvic examination were compatible with five and one-half months' pregnancy. Results of the initial laboratory examinations were reported as follows: urinalysis, essentially negative; hemoglobin 10.8 gm. per 100 cc.; erythrocytes 3,650,000; leukocytes 5400; sedimentation rate 47 mm. in one hour by the Westergren method. Concentrations of amylase and of direct and indirect bilirubin were within normal limits.

Roentgenograms of the chest, the lumbar vertebrae and gall bladder showed nothing abnormal. Because of the location of the pain, a lesion of the kidney was suspected. An excretory urogram, however, revealed only mild right hydronephrosis, which was attributed to the pregnancy. The degree of anemia did not seem more than could be attributed to pregnancy.

While in the hospital the temperature curve was within normal limits, but the patient continued to complain bitterly of pain and demanded narcotics for relief. It was noted that she experienced prompt and complete relief of pain as soon as the needle containing narcotics entered the skin. This, together with her behavior pattern, led to the assumption that her pain might be on a functional basis. For this reason, three days after admission to the hospital, the entire problem was discussed rather thoroughly with her, and she was told that she must stop the use of narcotics. To the surprise of the staff she requested no further medication and simultaneously the pain completely disappeared. The proponents of the functional theory were elated at this amazing recovery; nevertheless it was decided that the intestinal tract should be investigated. When roentgenograms of the stomach were taken they revealed an ulcerating obstructing lesion involving the pyloric third of the stomach. It was the opinion of the roentgenologist that this lesion likely represented a neoplasm. At this point, one of us (Walters) was called in consultation and it was his opinion, as well as the medical consultants', that immediate operation was indicated.

Read at the meeting of the Southern Minnesota Medical Association, Lake City, Minnesota, September 9, 1957.

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At operation on April 24, 1953, an extensive ulcerating adenocarcinoma of the stomach was found extending to the serosa but there was no nodal involvement. Two-thirds of the stomach was removed including 2 cm. of the duodenum below the pylorus. It appeared as though the proximal line of resection for the stomach was well beyond the limits of the lesion, but when the pathologist examined the specimen before the operation was completed, involvement of the proximal end of the resected section made it necessary to extend the resection to the cardia on the lesser curvature leaving only the fundus which was free of neoplastic involvement. An anterior Hofmeister-Polya anastomosis was performed. The pathologist reported that the lesion was an ulcerative adenocarcinoma, Grade 4, with a central crater measuring 4 by 4 cm. and a peripheral zone of superficial spread covering 8 by 6 cm.

The postoperative course was uneventful and the fetus remained active. The patient was ready for dismissal from the hospital sixteen days after operation when a massive gastrointestinal hemorrhage with hematemesis and melena followed by shock occurred. Blood was administered. Frequent washing of the stomach with a large-size tube passed into it, using water at 120° F., did not stop the bleeding. Intra gastric exploration became necessary and an emergency laparotomy was performed on May 23, 1953. There was diffuse oozing from the structures in the abdomen. So much of the stomach had been resected that it seemed likely that the anastomosis would be inaccessible to inspection through an incision made in the anterior wall of the stomach. Such being the case, jejunostomy was performed and a catheter was pushed through the opening in the distal loop of jejunum about 10 inches below the anastomosis to the stomach, and directed upward through the anastomosis into the stomach. The purpose of this tube was to keep the stomach free of clots and to serve as a route for injecting vasoconstricting and clot-stimulating substances into the lumen of the stomach. The patient was given 2000 cc. of citrated blood before the operation, and 3500 cc. of blood and 500 cc. of 6 per cent solution of pharmadex at the time of operation. After operation she was given 500 cc. of blood, and 1200 cc. of modified human globin. At the time of the operation 72 mg. of vitamin K₁ was given intravenously and after operation vitamin K was given for several days. The intra gastric bleeding rapidly diminished.

Two days after operation the patient began to have mild labor pains. In the next few days the fetal sounds disappeared, and eleven days following the emergency laparotomy and jejunostomy she was delivered of a stillborn female fetus.

From then on convalescence was rapid. The patient improved remarkably. The jejunal tube was removed and she began to eat. She was dismissed thirty-one days following the emergency laparotomy and forty-nine days following gastric resection.

This patient was examined every six months in 1954 and 1955 and every year since then and there has been no evidence of recurrence. She was last examined on March 4, 1957, and she had no complaints. Her appetite was excellent and she had gained 34 pounds. Results of physical examination were entirely normal. Roentgenograms of the stomach showed normal conditions and except for a mild hypochromic anemia her general condition was excellent.

Comment

This patient is particularly interesting because although the lesion was of high degree malignancy (Grade 4) and involved the serosa of the stomach there was no glandular involvement. Although symptoms were bizarre she did have abdominal pain, anemia, and gastric achlorhydria. The initial resection which grossly seemed to go well beyond the lesion proved not too sufficient when the specimen was examined microscopically and re-resection of the remaining portion of the stomach had to be performed before closure. The re-resection segment was without malignant involvement. The postoperative course was complicated by an unexpected gastrointestinal hemorrhage on the sixteenth day following gastric resection. There is some likelihood that a non-viable fetus and a fibrinogen deficiency may have been the cause of the hemorrhage. Unfortunately, studies of blood coagulation, prothrombin time, and fibrinogen were not made prior to the unanticipated hemorrhage following gastric resection.

Although bleeding could not be controlled by washing the interior of the stomach with water at 120° F. introduced into the stomach through a nasal tube, it stopped quickly after jejunostomy was performed followed by administration of vitamin K₁ at the time of operation and vitamin K for several days. Following delivery of a dead fetus on May 21, recovery was rapid. This patient is one of only five returned to the operating room by one of us (Walters) because of post-operative intra gastric bleeding, which could not be controlled by gastric lavage with water at 120° F. to remove all intra gastric clots, and by blood transfusions. In the last two years, in some such cases, intra gastric installations of thrombin or dilute adrenal solutions, or both, have been made.

Stevens-Johnson Syndrome

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THE Stevens-Johnson syndrome is a variety of erythema multiforme exudativum. The etiology is in doubt and the efficacy of treatment is by no means established. The syndrome is thought to have an allergic background, the tissues becoming sensitive to the products of necrosis, to drugs, or eventually to many stimuli. The cortisosteroids are reported to "cure" the disease,¹ and this is adduced as further evidence of an allergic basis for the condition. The following case report demonstrates a dramatic response to ACTH, further supporting a hyperallergic origin.

Case Report

M. J., a ten-year-old girl (patient of E. A. Addy, M.D., Gilbert, Minnesota), was admitted to the Virginia Municipal Hospital, November 13, 1955 with fever and a rash. The youngster had been seen at home, by the family physician, several days before admission. She then presented a temperature of 102° F., and other than general malaise, had no special complaints. The physical examination then was negative, except for posterior cervical adenopathy. She was treated conservatively at home, and was seen the following afternoon with no new physical findings.

The following day, the youngster developed a papular rash on the upper thorax, and an "erysipeloid like" erythema on the malar eminences with butterfly distribution. The youngster was hospitalized on the following day. Physical examination on admission to the hospital revealed a very toxic, dehydrated and acutely ill child. The temperature was 105.4° (R). The pulse was rapid and restlessness was marked. There was a generalized, widely spread rash, involving the palms and soles. The mucous membranes of the mouth were ulcerated and a conjunctivitis was present. She was placed on penicillin, ilotycin and parenteral fluids.

Over the next two days her condition became progressively worse, and on November 15 she was seen in consultation. At this time the patient was very toxic and dehydrated. There was a severe conjunctivitis, with pericorneal vascular injection and marked purulent drainage. The lids were edematous and bluish in color. The lips were cherry red. The buccal mucous membrane presented an ulcerated appearance and considerable sloughing was noted. The tongue was coated and ulcer-

ated. There was a brownish coating on the gums and teeth. The tonsils had a greyish exudate and the pharynx was injected and swollen. The posterior lymph nodes were palpable; no other lymphadenopathy was noted. The neck was supple and no spinal rigidity was elicited. The chest was clear. The heart tones were of good quality, the rate rapid, the rhythm regular, and no murmurs were heard. The abdomen was soft; the liver and spleen were not enlarged and no masses were felt. The skin presented a generalized papular-macular-vesicular eruption; large bullae were in evidence on the face, abdomen and buttocks. Slight pressure over the lesions caused superficial peeling of the skin, leaving a violet-red raw surface. Both sides of the face were blanched and broken blebs with mucoid secretion and some crusting were present on the forehead and cheeks. The genital mucous membrane was ulcerated and some crusting was present.

The laboratory findings showed hemoglobin 15.5 grams; white blood count, 9,300 with 52 per cent segmented neutrophils, 24 per cent non-segmented neutrophils, 21 per cent lymphocytes, and 2 per cent monocytes. On two occasions, L.E. cells could not be demonstrated. The urine analysis and serology were negative. The bleeding and clotting time was normal and the platelet count was 100,000. The total protein was 5.2 grams with 3.7 grams of albumin and 1.5 grams of globulin.

On November 15, 1955, the penicillin and ilotycin were discontinued and the following therapy was instituted: ACTH 20 mg. every six hours, I.V. Achromycin 100 mg. every eight hours, I.V. 10 per cent glucose by continuous drip, Vitamin B Complex and Vitamin C, I.V., and Hydrocortone drops and Neomycin ointment to the eyes. The patient remained toxic until November 16 when the temperature dropped to 100.6° (R) and returned to normal on November 19. There was an apparent dramatic response to the ACTH and supportive therapy. The ACTH and Achromycin were continued for ten days with a gradual decrease in dosage. The skin lesions and mucous membrane involvement cleared rapidly and the youngster was discharged, well, on November 28, 1955, fifteen days after admission to the hospital.

Comment

The case presented appears to fit into the condition referred to in the literature as Stevens-Johnson Syndrome. The disease is considered a variety of erythema multiforme exudativum of the "major" or severe type. Because of the variation in skin reaction, involvement of the mu-

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cous membranes, severe ophthalmia and the severity of systemic reaction this symptom complex has been described under a variety of names: erythema multiforme exudativum (for the less severe cases), erythema multiforme pluriorificiale,² mucocutaneous fever, eruptive fever with stomatitis and ophthalmia and Stevens-Johnson syndrome for the more severe cases. Stevens and Johnson³ described the severe form in 1922.

The Stevens-Johnson syndrome is a disease of the first three decades. It is seldom encountered before the age of three although cases as early as seven months have been reported.

The illness starts out with a fever and general malaise and within three or four days of onset there is a progressive fever, exanthema, oculonasal drainage, laryngeal cough and perhaps some joint stiffness. Three symptoms are characteristic: (1) general malaise, (2) mucosal inflammation, (3) exanthema. Of the general signs, fever is consistently high and oscillating, restlessness and prostration are marked, delirium is often present and rapid dehydration is the rule. A diffuse involvement of the mucosa with severe ophthalmia confirms the diagnosis. The buccal and nasal mucosa is always prominently involved,⁴ however, the respiratory and digestive mucous membranes may also be involved. Tracheitis and suffocating laryngotracheitis do occur in some cases.⁵ Esophagitis, rectosigmoiditis and anusitis have been reported in cases coming to necropsy. The genital mucous membranes are a frequent site of involvement. Conjunctivitis is always present and usually is of the allergic type, presenting a pericorneal vascular injection. Sometimes a purulent conjunctivitis is found, and, in the severe cases, panophthalmitis and ulceration of the cornea is not uncommon with resultant blindness.⁶

The exanthema consists of varied manifestations. Macules, papules and nodules appear early followed by erysipeloid plaques. Vesicles and bullae on a red velvet skin then appear near the original lesions. These bullae burst rapidly and give rise to peeling and ulcerations of the skin. Pressure on the macules causes a superficial peeling of the skin. The bullae are most prominent on the face, limbs and thorax. The eruption evolves through successive stages and lasts two or three weeks unless prolonged by infectious complications.

There usually are very few visceral manifesta-

tions. Digestive signs depend on the involvement of the esophageal or rectosigmoid mucosa. Respiratory symptoms are not uncommon and are usually due to mechanical obstruction of the airway by the mucosal lesions. Laryngotracheal suffocation and atelectasis have been reported.⁷ An associated hemorrhagic syndrome is a rare complication.

The illness is a self-limited disease, but the length of illness varies widely from ten days in the less severe to several weeks in the severe cases. The temperature remains high, up to 104° to 105° F, and the patient is extremely ill. The skin lesions begin to heal with the fall in temperature. Pigmentation of the skin is common over the healed areas. There is usually extensive peeling of the skin over the affected areas especially on the hands and feet, with the skin coming off in large sheets. The mucous membranes of the mouth are the slowest to heal. It is characteristic for this disease to recur. Several attacks may occur each year for as long as twenty years. The recurrences may be either severe or mild, in the same patient.

The clinical diagnosis is not difficult, but cannot be confirmed by laboratory tests. Blood counts are usually within normal range. Occasionally a leukopenia or a mild leukocytosis is present. The sedimentation rate is often a little accelerated. Cultures of the blood, pharyngeal and cutaneous secretions are negative. Differentiation from eruptive fevers, reactions to antibiotics, dermatitis herpetiformis and pemphigus sometimes causes difficulty. It is not uncommon for these patients to be admitted into contagious disease hospitals as cases of diphtheria, scarlet fever, measles or varicella.⁸

Fatal cases are not common. However Short⁷ reported two fatalities in five cases. One of Short's cases followed a long course of Thiouracil therapy. It is difficult to obtain mortality figures. In severe cases it may be as high as 10 or 12 per cent.⁹

Since most men consider the Stevens-Johnson Syndrome a self limited disease, no specific therapy is available. This means that supportive therapy is of paramount importance. Fluid and electrolyte replacement require adequate estimation of fluid and electrolyte losses because of high fever and oozing from skin surfaces. Intravenous therapy is essential in severe cases during the first

days of illness. Blood and plasma are sometimes necessary in small children to prevent electrolyte imbalance or progressive malnutrition. Nutrition must be maintained by feeding a high caloric, high protein diet with additional vitamins. Cortisone and Corticotropin have been reported to cure the syndrome along with antibiotics to control secondary bacterial invaders. However, since sensitization may play a role, the antibiotics with possible sensitizing properties such as penicillin and sulfonamides should be avoided. Immediate success with intravenous salicylates, along with penicillin and streptomycin has been reported by Bernard and Vincent.⁹ Proper local therapy for the skin, mouth, genitalia and eyes is essential to allay discomfort to the patient. The danger of asphyxia may necessitate tracheotomy to relieve tracheobronchial obstruction.

It is difficult to decide if this disease is increasing in frequency or is being diagnosed more often as a result of a greater familiarity with the syndrome. Case reports are appearing in the literature with increasing frequency during the past few years.

Summary

A case report of Stevens-Johnson Syndrome is presented, showing a dramatic response to ACTH. This supports the theory of hyperallergic origin.

The etiology of the syndrome is obscure.^{*} However, the lack of a biologic syndrome, the ineffectiveness of antibiotics, alone, and the dramatic effects of corticosteroids seems to indicate an allergic basis for the disease.

The syndrome is characterized by a variation in skin reaction, involvement of the mucous mem-

branes, severe ophthalmia and severe general reaction.

The disease is self-limiting and variable in its course. However, since sensitization may play a role, antihistamines and adrenal steroids are indicated in treatment. Antibiotics except those with possible sensitizing properties should be given to control secondary bacterial invaders. Supportive therapy is essential because of the severity of the disease.

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BURNS OF THE EYELIDS AND EYES

(Continued from Page 7)

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Continuation Study

Roentgen Diagnosis of Abdominal Tumors in Infants.

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EXTRA-ALIMENTARY abdominal masses in infants and children offer a challenge to the pediatrician, surgeon, and radiologist. With reliable clinical and roentgen signs one might establish a diagnosis with enough certainty to decide whether or not to attempt a laparotomy.

The general subject of abdominal masses has not been covered collectively in the roentgen literature, except for Cappuro and Blanco's monograph on topographic localization of abdominal masses in adults. Recently, Nice and Margulis of the University of Minnesota applied this approach in pediatric roentgen diagnosis of abdominal tumors. The case material presented in this course was from their collection.

Physical examination and radiographs in two planes offer the most help in localization of the tumor. Pyelography or barium studies, or both, are the next most useful procedures. Arteriography, retroperitoneal or intraperitoneal air insufflation, or special contrast studies are infrequently necessary.

After the mass is localized, one attempts to differentiate between solid and cystic lesions; the latter are usually intraperitoneal. Solid ones are less sharply demarcated, they will not alter their contours during respiration or change in position, nor will they show change in size or shape after aspiration.

One almost must be on the lookout for calcification. Osseous structures or reticulated patterns are found in teratomas and dermoids, and amorphous or stippled calcium may be found in tumor necrosis or in areas of hemorrhage. Hemangiomatous vascular patterns are found occasionally.

The retroperitoneal space is the site of some childhood's most common tumors. They can displace the gastrointestinal tract anteriorly and lat-

erally, the retroperitoneal structures may be displaced, or ureteral obstruction may occur.

Wilm's tumors present as a renal mass with or without intestinal displacement. Collecting system distortion or invasion or both, rather than nonvisualization, is the rule. Rarely, the collecting systems will not be visualized due to vascular invasion. Calcification may occur, and renal carcinoma may mimic the lesion.

In contrast, no collecting system invasion is found in cysts. Characteristic infundibular elongation and calyceal cupping are the rule. Polycystic disease is rarely discovered in infancy. Leukemic infiltration is a much more common cause for bilateral renal enlargement in infancy and childhood than is polycystic disease.

Neuroblastomas, which arise in either the adrenal medulla or extra-adrenal chromaffin system, grow rapidly and may displace retroperitoneal as well as intraperitoneal structures. The intestines may be displaced anteriorly. The kidneys may be inferolaterally displaced. Calcification within the tumor and its metastases is relatively common. Bone, liver, and brain metastases are characteristic.

Retroperitoneal teratomas, especially in the sacrococcygeal or paravertebral gutters, are found in the very young. Adrenal tumors, such as the ganglioneuromas, et cetera, are rare. Adenomas and carcinomas may result in advanced skeletal maturation. One might be on the lookout for adrenal enlargement and/or renal displacement.

Lymphomatous and leukemic nodes may mimic pancreatic bed or other retroperitoneal tumors or cysts.

The characteristic posterolateral impression on the second portion of the duodenum in a jaundiced infant with a right upper quadrant mass is diagnostic for choledochal cysts.

Of the intra-abdominal intraperitoneal tumors, those of liver origin are extremely interesting.

Summary of Continuation Course presented September 27, 1956.

JANUARY, 1958

Embryonal hepatomas, cysts, and many rarer neoplasms are known to occur. The right lobe lesion, which is more common, is anterior and may displace the stomach to the left. The right kidney may be depressed. The hepatic flexure may be displaced downward and posteriorly. The left lobe tumor will displace the gastric fundus. Margulis described the undulated margin of the liver in hepatomas in contrast to the more sharply demarcated cysts. Rapid growth favors the diagnosis of sarcoma.

Mesenteric and omental cysts arise from the mesenteric root or mesocolon and are located anteriorly. Duplication cysts arise from the alimentary tract and usually do not communicate with the intestinal lumen. These often cause intestinal obstruction. Lymphangiomas of the mesentery may occasionally be confused with these.

Meckel's diverticula are rarely delineated radiographically. Abscesses, especially appendiceal, are often clearly demarcated as a distorted mass in the cecal bed. Rarely meconium ileus presents with a meconium cyst rather than with characteristic diffuse free fluid or calcification. Anterior pelvic teratomas arising from the genitourinary tract may have calcified parts or shadows from sebaceous material. The pelvic rhabdomyosarcomas and fibrosarcomas have less characteristic findings and present as retroperitoneal or pelvic masses.

Not all abdominal tumors or masses have been presented; nevertheless, from this selected material one can appreciate the role of the radiologic portion of the total exam in the establishment of a type specific diagnosis and localization of extra-alimentary abdominal lesions.

DETECTION AND TREATMENT OF NONINVASIVE CARCINOMA OF THE CERVIX

(Continued from Page 23)

conization or cautery may be considered with a view to preserving reproductive capacity; the same is true of observation alone. These two categories imply a degree of responsibility that many physicians do not care to assume, and no one can argue with their decision, which again is an individual matter.

Comment

It is apparent that the success or failure of this screening technique depends on many factors. However, the initial step, which is obtaining the smear, must be the responsibility of the general practitioner of medicine. No diagnostic clinic can reach all the population. No one else can successfully set up a long-term program for the community, for this cannot be a single examination but must be continued at intervals throughout the life of the individual woman. However, the process of obtaining and documenting smears is of no value if the chain of command does not follow through a well-trained cytotechnologist and an interested cytopathologist. Finally, the close co-operation of the pathologist and the general practitioner and free discussion between them are

essential in the interpretation of some questionable smears.

It should be emphasized that the cytologic study of cervical smears is but one diagnostic measure; it is extremely valuable but it never is used alone to make the final diagnosis of carcinoma of the cervix. The gynecologic history, pelvic examination and careful inspection of the cervix cannot be discarded. Indeed, they assume even greater importance than previously.

The complexity of the interpretation of cytologic smears demands skilled personnel to read the slides. The errors inherent in poorly prepared material demand skill in obtaining the slides, and the human variables present demand the close co-operation of the pathologist and the patient's physician in deciding the proper treatment. The door is open on a new vista for women. Can we be reluctant to pass through?

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Clinical-Pathological Conference

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CASE PRESENTATION—MINNEAPOLIS VA HOSPITAL

HENRY A. JOHNSEN, JR., M.D.

DONALD F. GLEASON, M.D.

A sixty-seven-year-old retired farmer and carpenter entered the hospital complaining of severe upper abdominal pain, which had begun suddenly at 10:00 p.m. of the previous night. For the previous six weeks, he had noted progressive weakness and a 20 pound weight loss, in association with a progressive difficulty in keeping food down.

Historical review disclosed that he had been troubled with intermittent bouts of severe heart burn and epigastric pain for over thirty years. This usually occurred shortly after meals. A peptic ulcer had been diagnosed many years ago and he had obtained occasional relief with the use of milk or antacids. The attacks of pain subsided spontaneously without therapy on many occasions also. In the early 1930's, three episodes of hematemesis and melena were experienced and similar bleeding recurred in February, 1952. Constipation had been a life-long problem, particularly during antacid ingestion and the patient was prone to use mineral oil in copious amounts. His maternal grandmother and seven of his mother's siblings had died of malignancies.

His first admission to this institution occurred in June, 1952. He had resumed his ulcer therapy after the episode of bleeding in February of that year, had noted progressive constipation and had returned to the use of mineral oil. In March of that year, he developed fever, chills and cough. His private physician was able to distinguish a left lower lobe infiltrate on his chest x-ray. This had not resolved after three months of antibiotic therapy and it was for this reason that the patient was admitted here. On bronchoscopy droplets of free fat were seen in the washings along with many inflammatory cells and lipid laden phagocytes. No malignant cells were seen on successive sputum specimens. There was no response to various antibiotics and a diagnosis of lipid pneumonia was made. A barium swallow and small bowel series were performed because of the patient's abdominal complaints and history of bleeding. A markedly contracted duodenal bulb and descending duodenum were noted. Beyond this point the duodenal loop and remaining small bowel were distended and contained air fluid levels. A barium enema revealed a normal colon and terminal ileum. Laparotomy was performed, but positive findings

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JANUARY, 1958

were limited to scarring of the duodenum and fibrosis of the mesentery of the terminal ileum. No resection was done. A diagnosis of diabetes mellitus was made on the basis of a postoperative glucose tolerance test, although no glycosuria was documented. He was placed on a convalescent ulcer regimen and discharged.

Three weeks later he experienced severe recurrent upper abdominal pains. These occurred approximately four times monthly thereafter and would often be relieved with an enema, although a hypodermic was sometimes required. The patient described the feeling as one in which his abdomen "seemed about to burst." The pain was non-radiating and was frequently associated with his periods of constipation. Hematemesis and melena had recurred thrice following his discharge here and had required hospitalization and subsequent transfusion once elsewhere. The third episode of bleeding following his first admission began with epigastric pain, bloating and vomiting. Four or five non-bloody emeses occurred during the night, to be followed by four hematemeses the next morning. The patient then returned here for his second admission in January, 1953.

At that time a 10-pound weight loss could be documented. The fasting blood sugar was 82 mgm. per cent. A qualitative test for urinary porphobilinogen was negative. X-ray examination of the chest, including planigraphy and bronchography, revealed no evidence of intrabronchial disease, but the diffuse process throughout the left lower lung showed little change. Repeat barium studies of the gastrointestinal tract also revealed little change. The cholecystogram, intravenous pyelogram, and electrocardiogram were all normal. Sputum smears and cultures and cultures of gastric aspirations were negative for histoplasma capsulatum and for acid-fast bacilli. He was treated conservatively and discharged. His bouts of abdominal pain continued and, although he was seen on subsequent followup examinations, little change in his status could be detected. His final admission occurred in October 1955.

The past history, system review and family history were believed to be otherwise noncontributory.

On physical examination the weight was 100 pounds, the temperature 99 degrees, the pulse 92 and the blood pressure 95/70. He was a small, emaciated white man with a high pitched voice and he appeared chronically ill. The right pupil was slightly larger than the left, as it had been on previous admissions, and reaction to light was sluggish. The right hemithorax was hyperresonant. Scattered sticky râles were described over the left lower chest. The vital capacity was 2.8 liters, slowly expelled. The testicles were small but the prostate was enlarged. A generalized hyporeflexia was described. The pedal pulses were not palpable. Proctoscopy was negative. The examination was felt to be otherwise within normal limits.

The laboratory examination revealed a white blood count of 8,700 with 68 per cent neutrophils, 26 per cent lymphocytes, 2 per cent monocytes, 2 per cent eosinophils and 2 per cent basophils. The hemoglobin was 11.5 grams per cent. The sedimentation rate

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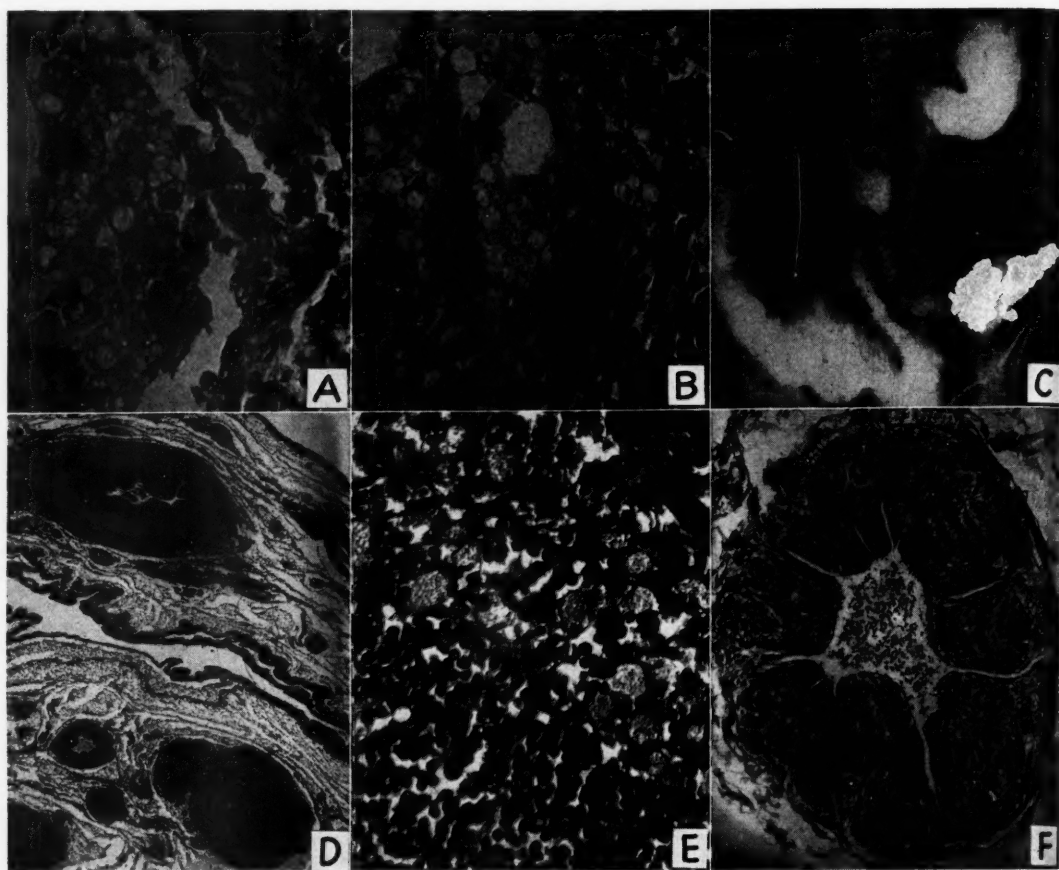


Fig. 1. MINERAL OIL EXCESS

(a) Lipid pneumonia. (b) Lipophages in spleen. (c) Barium study of upper gastrointestinal tract, revealing marked contraction of duodenal bulb and descending portion of duodenal loop. The remaining small bowel is alternately distended and contracted, and exhibits multiple air-fluid levels, with a bizarre mucosal abnormality.

(d) Section of mesentery near intestinal wall, showing proliferation of intima of small artery at top, with nearly obliterated lumen. (e) High power view of tiny lymph node at bottom of (d), showing lipophages. (f) High power view of tiny vessel between the two lymph nodes at bottom of (d), showing vacuoles within vessel wall and associated obliterative intimal proliferation. Photographs by Medical Illustration Service, VA Hospital, Minneapolis.

(Westergren method) was 67 mm. per hour. VDRL slide test was negative. Three urinalyses revealed a maximum concentration of 1.013. One plus glycosuria was noted on two specimens. Traces to 2-plus albuminuria were noted. Thirty to forty casts were noted in one specimen. The BUN was successively 12.5, 110 and 47.5 mgm. per cent. The fasting blood sugar was 99 mgm. per cent. The serum sodium was 145.6 and 130 meq/l. The serum potassium was 3.5 and 6.6 meq/l. The serum chlorides were 105.7 and 100.0 meq/l. The plasma CO_2 combining power was 23.0 meq/l. The serum albumin/globulin ratio was successively 3.9/2.3, 5.4/3.5 and 4.3/2.5 grams per cent. The serum alkaline phosphatase was 7 KAU. The serum acid phosphatase was 1.6 KAU with a prostatic fraction of 0.2 KAU. The serum calcium was 8.5 mgm. per cent and the serum phosphorus 2.5 mgm. per cent. The serum amylase was drawn during a bout of abdominal pain and was found to be 130 units. Two stools were negative for blood and meat fibers and the qualitative test for fat was negative. Twenty-four-hour

urinary 17-ketosteroids were 3.6 mgms. Twenty-four-hour urinary 17-hydroxycorticoids were 6.6 mgms. Twenty-four-hour urinary gonadotropins were between 64 and 128 mouse units. The prothrombin activity was 57 per cent. The electrocardiogram now revealed a QS deflection in V2, 3 and 4, but was otherwise unchanged. X-ray examination of the chest revealed little change from previous admissions. Barium swallow now revealed a narrowed two inch segment in the distal esophagus and the remaining findings in the stomach and small intestine were still present. A barium enema revealed no intrinsic pathology of the colon or terminal ileum, but the sigmoid was displaced superiorly and to the right by a pelvic mass, possibly a distended urinary bladder. Catheterization yielded 800 cc. of residual urine.

Esophagoscopy was performed on the ninth day and a freely bleeding polypoid mass was seen just above the cardia. A biopsy revealed adenocarcinoma. The patient was transferred to the Surgical Service and an attempt was made to prepare him for resection. He

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continued to be unable to eat, however. He lost more weight, became progressively weaker and finally expired on the twenty-ninth hospital day.

Discussion

DR. FRANK M. MACDONALD: I am going to assume that this audience has read the protocol and I will proceed with my analysis of it. This man was sixty-seven years old. He came into the hospital for the third time and died, after ten weeks of symptoms, of a carcinoma involving the esophagus. I prefer to discuss separately the disease involving the lung, the old peptic ulcer syndrome, the question of diabetes, his later course with abdominal pain, and the final carcinoma.

The first thing to be mentioned, I think, is the lung lesion. This is a left lower lobe infiltrate about which we have very little diagnostic information. It persisted apparently unchanged for at least three years, having been discovered early in 1952. There was very little change in spite of occasional treatment with antibiotics. The man was a mineral oil user and clinically this lung lesion was attributed to that. To go with that, oil droplets and lipophages were found in the bronchial washings. The value of this is limited by the absence of a statement that the man was prepared for such a study. Sputum studies and even bronchial washings are of less value in the diagnosis of lipid pneumonia if they are not preceded by a period of several days without the use of oily substances. There are certainly other possibilities for such a pulmonary infiltrate. Prior to the first films, the man could conceivably have had a pneumonia which had not yet resolved. He could have had an interstitial pneumonitis of the kind that we know rather little about. Since he died of a carcinoma in a nearby area, one might wonder whether a cancer of the esophagus had infiltrated the lung, but I am sure a three-year period is conclusively against this.

There are a couple of other things that appear in the history that I would like to dispose of early. One is the endocrine problem. The man may have had diabetes. His glucose tolerance test was done post-operatively and, therefore, may be unreliable, since a patient should be on an adequate carbohydrate intake for some time before the test. There are a couple of later sugar levels which don't help me much. So I am unable to make a definite diagnosis of diabetes mellitus. I must admit that it is a possibility. His 17-ketosteroids were somewhat low and he had rather high urinary gonadotropin levels. I am inclined to assume that this is, if not within the normal range, very close to it for a man of sixty-seven. The average daily urinary excretion of 17-ketosteroids in elderly males is approximately 4.5 mgms.¹ This indicates that this patient's value is not too far out of line. Am I right about that, Dr. Flink?

DR. FLINK: Yes, particularly for a person whose nutrition has been interfered with.

DR. MACDONALD: Some neurological findings are recorded. He had one pupil which was abnormal and did not respond to light, and hyporeflexia was noted.

I think these findings, while not anything that one can diagnose, certainly suggest the possibility of some neurological cause for his abdominal pain and I will mention that later on.

He gave a history of peptic ulcer, having had, I assume from the protocol, recurrent abdominal pain for a period of about thirty years. The pain as recorded here was rather atypical for ulcer in that it came on shortly after meals and only occasional relief from ulcer medication and food was obtained. He had bleeding in the 1930's and in 1952, when first here, a duodenal deformity was noted. Subsequently a similar deformity was found. I am inclined to accept this as an ulcer history in spite of the atypical features. I do question whether or not it enters into the present problem—the problem of his abdominal complaints of the last three years. From 1952 on, it seems that something new was probably added. The first indication that we have was that he had the picture of air and fluid levels in the bowel. In June, 1952, he developed recurrent upper abdominal pain, accompanied by a sense of distention, which occurred apparently four times a month. He had at this time a negative abdominal exploration except for the old scarring of the duodenum. The way the pain is described in the protocol suggests that this is something new. I would like to know a little more about it if the information is available. First, apparently he had both bouts of pain and bouts of bleeding. I would like to know if they occurred at the same time or as separate incidents?

DR. JOHNSEN: They did occur, on occasion, separately and not always simultaneously.

DR. MACDONALD: There was one in which the symptoms apparently occurred at the same time. Was the pain like that of intestinal colic? Do you know anything more about the duration?

DR. JOHNSEN: Yes, the pain was colicky in nature.

DR. MACDONALD: Did he have nausea or vomiting during these attacks of pain?

DR. JOHNSEN: Sometimes he did.

DR. MACDONALD: Do they describe objective distention of the abdomen during this time?

DR. JOHNSEN: Yes.

DR. MACDONALD: Well, that helps me somewhat.

In 1955 there was a further change. The man was admitted having lost 20 pounds in weight. He was weak and unable to hold food down, and a diagnosis was made of an adenocarcinoma involving the lower end of the esophagus. In spite of attempts to prepare him for surgery, the man went on and died after a total duration of ten weeks from the onset of these symptoms, which I assume to date from the beginning of esophageal obstruction.

With the terminal episode there were renal findings including azotemia, variable amounts of albuminuria and some suggestion of limited specific gravity on three

occasions. I can't make any specific diagnosis from this and I will have to assume that this is the sort of renal finding that may occur in seriously ill individuals for apparently a variety of reasons. There is an ECG change which is of some interest and I wonder if the cardiograms are available. I might also mention the displacement of the sigmoid by a pelvic mass which was thought to be possibly the bladder. The bladder did contain a large amount of residual urine so that I am going to assume that this explains the pelvic mass. The previous ECG was called normal and, after looking at this one, it seems to be as recorded in the protocol. He does have absent R waves across the precordium through V4 and no significant T wave or ST changes that I can see. May I see the x-rays now, please?

DR. J. V. TESTOR (Resident in Roentgenology): There are a great number of x-rays on this patient. I have put up samples of his chest films taken from the three admissions. This is his original admission film in 1952 and we see the diffuse infiltrate in the left lower lung field described in the protocol. On the lateral view it seems to have involved the lower lobe and the lingula as well. Here is a picture of the chest in 1953 and I don't think there has been any essential change, except perhaps a slight increase in involvement. There are some increased markings in the right upper lobe now. This is a representative sample of a planigram taken in 1952 and it demonstrates that the main bronchial segments are open. There is no evidence of a hilar mass at that time. This is a film taken on the last admission and it shows essentially the same findings. We thought perhaps there might have been a slight progression of the infiltrate, but nothing very remarkable.

The most interesting x-ray feature in this patient is his gastrointestinal tract. This is a picture taken of the upper gastrointestinal tract in 1952 and it shows a marked duodenal deformity. The duodenum is markedly constricted and on all of our studies during the three-year period, it remains that way. So we are in complete accord with the diagnosis of duodenal ulcer. With this extreme amount of deformity it would be assumed that he had an active process. The most interesting feature, however, is his small bowel. This presents a strange picture. These films were all taken in 1952. First of all, there is a widening of the duodenal loop. The duodenum appears rather fixed in position and then as we follow the barium down into the ileum we get this very bizarre appearance, which is even present in the terminal ileum. One is rather hard put, here, to decide whether one is dealing with a process of mucosal ulceration or whether there is an obstruction or some process interfering with mobility, with resultant retained material within the bowel. We were inclined to choose the latter and we feel that it did not represent an ulcerated bowel but rather retained material within the bowel. This is an upright view of the abdomen taken in 1953. It shows multiple fluid levels and distention of the bowel.

DR. MACDONALD: Is gas seen in the large bowel?

DR. TESTOR: Well yes, there is some in the large bowel but I think the fluid levels are principally in the small bowel. This picture doesn't look like regional enteritis and it doesn't have the appearance of conditions that we refer to as disordered motor function.

This is a barium enema taken in 1952 and it shows a normal colon. Another colon x-ray on his final admission is also normal except for the elevation of the sigmoid out of the pelvis. It could be on the basis of a distended bladder.

Here is the picture of the terminal esophagus and we have good evidence of an esophageal carcinoma. We have a segment of the esophagus which is narrowed and irregular with a sharp margination on its superior surfaces, which would go well with a carcinoma of the esophagus. The stomach looks the same as it did on the earlier films and the marked duodenal deformity persists.

DR. MACDONALD: Thank you. I am going to accept first of all the ulcer history, and I have no better pulmonary diagnosis than lipid pneumonitis. So my main problems are to relate his episodes of intestinal colic and the bleeding of the last three years, if I can, to the information at hand here. The bleeding was hematemesis and melena and therefore presumably from the upper gastrointestinal tract. I assume that the bleeding in the 1930's was due to his ulcer and that the protocol is accurate in indicating that there was a long lapse between that early bleeding and the bleeding that began to occur in the 1950's. The duration of the tumor through three years, if the tumor symptoms explain this recent period, seems rather long for a carcinoma of the esophagus. I would rather favor a carcinoma of the stomach which, as is well known, may begin in the cardia and only later invade the esophagus and cause obstruction. The x-rays do not show a mass in the stomach but this is notoriously a difficult area to examine. A harder thing to explain is the negative laparotomy, if he was already having bleeding from a carcinoma of the stomach, but again this particular area is a rather difficult one for an abdominal exploration and small carcinomas have been missed in this sort of situation.

A tumor of the small bowel also comes to mind with this picture. I think the one point most against this possibility is that the patient did not have the picture of recurring partial small bowel obstruction. He had gas in the large bowel on more than one occasion, but this amount of distention is supposed to be unusual for partial bowel obstruction, and the latter is not commonly thought to cause an appreciable filling of the bowel with gas. He could, however, have had recurring bouts of more or less complete obstruction which might conceivably have relented. The absence of a definite lesion in the small bowel on the x-ray does not rule one out since this is a rather difficult area for the roentgenologist to examine adequately. A point somewhat against a small bowel tumor also is that he had a primary lesion in the region of the esophagus or stomach, and this

would give him a second primary tumor. Granting that these things do happen, we should nevertheless try to explain symptoms, if possible, with a single lesion. A hemangioma of the bowel might also be considered in a person that has had life-long bleeding and comes in with anemia. However, I have no other information from which to make this diagnosis. The possibility of an enteritis is actually more interesting to me now, after seeing the films, than it was on reading the protocol. The possibility of a widespread mucosal abnormality suggests this diagnosis. Regional enteritis does occur without the narrowing and formation of strictures and fistulas that we are all familiar with. I think that it is unlikely however. We have entirely too much small bowel and large bowel involvement here to be easily explained by this diagnosis. I would think it unlikely that enteritis could have been missed at the abdominal exploration. The possibility of a Meckel's diverticulum would have to be considered along with these other lesions of the small bowel, because it can bleed and cause recurring obstruction or intussusception, but I prefer not to make an extra diagnosis for which I have little support.

His pain was an obstructive type of abdominal or intestinal colic. This could be due to an organic obstruction such as the previously mentioned small bowel tumor. It could have been due to postoperative adhesions, although the first x-ray showing distention and fluid levels was made before his abdominal exploration. The possibility of an inhibitory or paralytic ileus ought to be mentioned, but one would not expect this much pain and vomiting and, since he definitely had colic, this can be ruled out. The possibility of a neurological lesion is of interest here since the man may have had diabetes and also had hyporeflexia and pupillary changes. Either a tabetic or diabetic pseudotabetic neuropathy might be a conceivable background for this sort of picture. The constellation representing diabetic neuropathy seems to have three major components. Diabetic nocturnal diarrhea is one of these and does not seem to be in the picture here. Secondly, these people may have periods of constipation with some degree of abdominal pain. I haven't seen any mention in the literature of anything approaching this degree of colic. Gastric dilatation and occasionally dilatation further down in the bowel represent a third manifestation of diabetic neuropathy but again this does not seem to represent the picture we have here. As far as tabes is concerned, I am afraid the scanty neurological findings, along with the negative VDRL, while not conclusively against this diagnosis, certainly do not support it well.

The last possibility might be a spastic ileus, which is a rather rare condition characterized by localized spasms with hyperactive bowel above the region of spasm. This resembles very much the picture of organic obstruction. Many people say that these conditions cannot be differentiated clinically before abdominal exploration. There is a special type of spastic ileus that I was interested to learn about in preparing for this discussion. It can occur with carcinoma in the region of the upper abdomen, particularly carcinoma of the pancreas, although apparently other lesions have been reported. This has been called O'Gilvie's syndrome by Dr. O. H.

Wagensteen in the new edition of his book "Intestinal Obstructions."² What appears to happen is that the patient may have extensive carcinoma in a fairly solid area of the pancreas or nearby structures. When the malignancy invades the region of the celiac axis and picks up some of the autonomic nerve supply to the bowel, a picture of recurring bowel obstruction of the sort one gets with a spastic ileus occurs. I am afraid that I can't make this diagnosis either, much as I would like to, because the syndrome went on for a three-year period and it seems unlikely that a person would have this much carcinomatous infiltration and survive for that period of time. None of the cases reported have survived for more than a period of months.

Dr. MacDonald's Diagnoses

1. Adenocarcinoma of the gastric cardia invading and obstructing the esophagus
2. Duodenal ulcer
3. Lipid Pneumonia
4. Spastic Ileus

DR. E. B. FLINK: There is one thing that I have learned about these protocols. They usually don't give you a case unless they have an anatomical lesion to demonstrate. This isn't always true. They may fool you sometimes and throw in one with a functional explanation but they usually have a pretty good anatomical reason for the patient's symptoms. I think the possibility of an internal abdominal hernia causing intermittent bowel obstruction has to be considered in addition to the other anatomic possibilities discussed. I wonder if there is any information about his diet. Was he on a carefully managed ulcer diet all the time?

DR. JOHNSEN: Only when troubled with symptoms.

DR. FLINK: What sort of dietary habits did he have? Do you have any information about that?

DR. JOHNSEN: No, except that he consistently lost weight during the years he was cared for here.

DR. FLINK: One of these films looks like it might show a Meckle's diverticulum. Is that possible?

DR. TESTOR: I suppose it is possible but it may just be an overlapping of the intestinal loops. We felt that there was some pathology involving the small bowel. It looked similar to a peritoneal carcinomatosis but it didn't seem very likely that a carcinoma would show up three years later than the bowel symptoms. Therefore we considered amyloidosis or some collagen disease involving the bowel.

DR. FLINK: I wish to compliment Dr. MacDonald on not mentioning those possibilities. I just wonder if the possibility of a bezoar in the lower ileum could be considered. That is why I asked about the dietary habits. He did have what looked like retained material on one of his films. A bezoar, however, is usually in the stomach and I have never heard of one in the ileum.

Pathologic Findings

DR. GLEASON: I think we have a case here of something that is frequently talked about but is never demonstrated.

At autopsy there was no jaundice, edema, ascites, hydrothorax or pericardial fluid. The heart was small, weighing only 180 grams. This happens frequently in chronic diseases. The heart very seldom weighs under 250 grams unless there is some very serious chronic illness. The coronary arteries were widely patent and there were no myocardial scars.

The left lung weighed 650 grams. Multiple round, yellow-white areas were noted in it, particularly in its lower lobe. In contrast to the left lung, the right lung weighed 350 grams. Its lower lobe contained a few small calcified nodules and a smaller number of the large pale areas present in the left lung.

The gastrointestinal tract was of primary interest here. In the lower end of the esophagus was an obvious tumor, which extended upward about two inches as a flat plaque. It also extended downward a short distance into the cardia of the stomach. Several of the lymph nodes in the immediate area were a little larger than normal but were not obviously malignant and no tumor was found anywhere else in the body. The small intestine was dilated very markedly, from the ligament of Treitz to the ileocecal valve, and the wall of the small intestine was quite tough and leathery in many areas. In many other irregular areas it was quite discolored, to the point of complete blackening and obvious gangrene. The abdomen was distended by this dilatation of the small bowel. It smelled very bad. The striking finding was that the branches of the mesenteric artery were all very prominent, being of the pipe-stem type, with very narrow lumina. When cut, the arterial branches stood out like little pencils. We dissected the mesenteric arterial tree quite thoroughly and could find no thrombosis. The whole process grossly seemed to be a very severe, diffuse atherosclerosis. Post-mortem culture of the peritoneal fluid, of which there was only a very tiny amount, was a tribute to the care with which this culture was taken. It remained sterile for five days.

The liver was very small, weighing only 850 grams. The spleen weighed 90 grams, another instance of atrophy in chronic disease. The gall bladder, pancreas and adrenals were normal. The kidneys were quite small, weighing about 50 grams each. They showed a little coarse scarring. The testes were both very small, being about 1.5 to 2.0 cm. in diameter.

MEDICAL RESIDENT: Were both superior and inferior mesenteric arteries involved with the atherosclerotic process?

DR. GLEASON: No, just the superior mesenteric artery.

On microscopic examination, lipid-containing macrophages are seen in the sediment from a bronchial washing. The presence of lipid may be confirmed with fat stains on the fresh material. A section of the lung reveals some emphysema, but most of it shows a severe lipid pneumonia, being almost solidified by masses of lipid-containing macrophages in scar tissue.

The same phagocytosis of lipid is seen in the spleen. We don't usually have the history of excessive mineral oil ingestion so well documented. All of the lymph nodes from the abdomen contained macrophages with ingested lipid, presumably mineral oil. The liver also contains cells filled with lipid. They aren't quite as convincing there, because we normally see a few fatty cells, but these don't have the usual central distribution. They are just scattered around haphazardly. They are not particularly portal or central in location.

A section of the stomach shows a rather thin carcinoma extending along the mucosa a short distance into the wall. It is an adenocarcinoma and it is presumably from the stomach.

In the testes the seminiferous tubules are all completely atrophic. The Leydig cells are preserved. This is the picture we anticipated from the hormone levels.

DR. E. T. BELL: Do you want to say something about the hormones here, Dr. Gleason?

DR. GLEASON: Well, I think it has been covered. The gonadotropin level is increased and the 17-keto-steroids are diminished because the testes are atrophic. He also has a fairly large prostate.

A section of the peripheral mesenteric arteries reveals their thick walls, some of which are connected by scar tissue. The tiny collapsed lumen is much smaller than normal for vessels of this size. This is because of marked collagenous thickening of the intima. No actual occlusion of the lumen by this intimal proliferation or by thrombus could be demonstrated. There wasn't any striking amount of arteriosclerosis elsewhere in the body.

MEDICAL RESIDENT: If you could have confirmed the presence of diabetes mellitus, such a severe degree of atherosclerosis could be better explained.

DR. GLEASON: The arteriosclerosis was limited to the mesenteric artery. This is the main reason we presented the case. We feel that this is an instance of chronic arterial insufficiency of the small intestine due to arteriosclerosis. One often hears this cited as the cause of some of the abdominal pain that accompanies coronary artery disease, but very seldom, if ever, is it demonstrated.

MEDICAL RESIDENT: What do the small intestines look like microscopically?

DR. GLEASON: Early changes of infarction are seen in the sections from the worst areas. No scarring or other change is seen.

MEDICAL RESIDENT: Is there a lot of fat in the mucosa?

DR. GLEASON: No, there is not. Whipple's disease can be excluded.

MEDICAL RESIDENT: What did the origin of the superior mesenteric artery look like?

DR. GLEASON: There weren't any big plaques at its origin. The sclerosis was a diffuse process in almost all of the branches of the superior mesenteric artery and

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extended out to the bowel. A review of sixty cases of occlusion of the mesenteric artery from various causes appeared in the literature in 1954. Fifty-one of these were definitely due either to thrombosis or embolus. Three of them were due to periarteritis. Two were due to septic arteritis. The remaining four had severe arteriosclerosis of the mesenteric arteries. Two of these had small thrombi which were not related to congestive heart failure. The remaining two were caused by an incomplete closure, like this case, and had gangrene of the bowel, but they were both instances of congestive heart failure. We often see severe sclerosis of the mesenteric arteries with no clinical signs or symptoms, but we have never seen this degree of sclerosis before. We feel that this is a case of chronic ischemia of the small intestine, due to diffuse arteriosclerosis of the superior mesenteric artery.

MEDICAL RESIDENT: What explanation do we have for the bleeding?

DR. GLEASON: It could have come from the carcinoma in the gastric cardia. The duodenum showed a scarring deformity and we couldn't even find the spot where the ulcer had been. We don't have any other explanation for the bleeding unless it resulted from the arterial insufficiency causing localized areas of the small intestine to become infarcted.

Final Anatomic Diagnoses

1. Adenocarcinoma of the gastric cardia, with invasion of the esophagus
2. Duodenal scarring
3. Lipid pneumonia
4. Cachexia with atrophy of vital organs
5. Localized atherosclerosis of the peripheral branches of the superior mesenteric artery
6. Infarction of the small intestine

DR. JOHNSON: In completing the discussion of this case I would like to mention the possibility that the

chronic and copious ingestion of mineral oil may be of more importance in the pathogenesis of this man's symptoms and findings than we realize. For many years it was believed that mineral oil passed through the alimentary tract without being absorbed. Yet lipophage aggregates have been noted in this patient's liver, spleen and mesenteric lymph nodes. In recent years such findings have been reported in other patients who have used mineral oil regularly. If we acknowledge, then, that mineral oil is capable of leaving the intestinal lumen, either by direct infiltration or by lymphatic or hematogenous transport, we must at the same time find it curious that the superior mesenteric arterial bed of this elderly man was the only major vascular system seriously involved by atherosclerosis. Furthermore the site of greatest involvement appears to be peripheral in location, including even the smaller vessels near the intestine, and sparing the more proximal major vascular trunks. It is possible that the lumina of even the smallest vessels in the mesentery have been compromised by intimal proliferation in response to mineral oil deposition within the vessel wall. If so, the resultant ischemia of the intestinal wall, especially in response to an increased demand for blood after ingestion of food, could easily explain this man's postprandial colic. It could also explain the unusual intestinal spasm and mucosal irregularity that puzzled the roentgenologists.

Finally, I would like to propose the possibility that this patient's cachectic state (which was documented even before the presence of his carcinoma) and the small size of his vital glands and organs may have been related to faulty assimilation of valuable nutrients, because of an excessive mineral oil ingestion. We are now reviewing our experience with the complications of mineral oil usage and expect to report a series of such cases in the near future.

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PHYSICIANS TAKING GRADUATE WORK

More than 30,000 physicians took graduate work either as interns or residents during the 1956-57 academic year, according to the AMA Council on Medical Education and Hospitals.

The figure is another increase from previous years and indicates the results of increased medical education facilities throughout the nation.

The report also showed an increase of 31 per cent in the number of internships offered, and a raise in average monthly stipends paid to interns. In hospitals affiliated with teaching institutions, the raise was from \$87 in 1954 to \$140 in 1956. The average stipend for non-affiliated hospitals increased from \$136 to \$177 over the same period.

Public Health

REVISED BIRTH AND FETAL DEATH CERTIFICATES

A. B. ROSENFELD, M.D., M.P.H., Minneapolis
J. W. BROWER, LL.B., M.A., Saint Paul

A statewide maternal mortality study has been carried out by the Maternal Mortality Committee of the Minnesota State Medical Association, beginning first in 1941. All deaths due directly to obstetric causes, all deaths associated with but not directly due to pregnancy, as well as all deaths occurring within ninety days postpartum (whether obstetrical or non-obstetrical) have been intensively studied. Results of the study have been presented to staff and medical society meetings and have been utilized in undergraduate and postgraduate education. These data have been of value to the medical profession in the continuing reduction of maternal mortality.

Thus, while there is accurate statewide data on obstetric mortality there is none on morbidity, except for limited studies in individual hospitals. For example, how early in pregnancy do women obtain prenatal care? What are the complications of pregnancy and their frequency? How many pregnant women are Rh tested? There is no available information as to the incidence of Cesarean sections, preeclampsia, hemorrhage, or Rh complications in Minnesota. We know the facts in maternal deaths as a result of the maternal mortality study. But, we have no statewide data on maternal morbidity. There are only gross estimates based on very limited and localized reviews of case histories. There is thus a need for brief, easily available and obtainable obstetrical data.

To make it possible to obtain current data regarding the complications of pregnancy, labor and delivery a detachable confidential section has been added to the bottom of the certificate of fetal death, beginning January 1, 1958 (Fig. 1). A similar confidential section will be added to the birth certificate at a later date. With few exceptions only check marks are necessary to answer the questions.

There are four main columns: (1) pregnancy, (2) not related to pregnancy, (3) labor, and (4) operative procedures. At least one item should be checked in each column, either "none" or the appropriate condition. For example, in column one, under conditions related to pregnancy either "none" should be checked, or if there were complications, the appropriate condition should be checked, such as preeclampsia, eclampsia, hyper-

tensive disease, nephritis, pernicious vomiting, pyelitis, anemia, hydramnios, or multiparity. If a complication not listed was present during the pregnancy the item "other" should be checked and the particular condition should be written in. Each of the four columns should be checked in a similar fashion, noting either "none" or the appropriate condition.

The first day of the last normal menses as well as the date of the first prenatal visit are requested so that information will be available to determine how soon women seek prenatal care. Information on Rh testing and the results are essential to determine the extent of the Rh problem in Minnesota. The three last questions pertain to the frequency of birth injuries, congenital malformations (noting the specific type) and the results of the blood serology.

The information requested can be secured, quite reasonably, by the hospital staff, it can be checked very quickly, and it is most relevant to current problems of maternal health. The addition of the confidential section has been approved by the Maternal Health Committee and has received the approval of the Council of the Minnesota State Medical Association.

The completion of this confidential section will make it possible to tabulate and analyze data on the births and fetal deaths in Minnesota. The analyses of data involving some 80,000 births and 1,800 fetal deaths annually should provide valuable information on the frequency of normal and abnormal pregnancies, the frequency and variety of obstetric complications, as well as those associated with pregnancy and labor. The confidential section should be detached from the certificate and mailed directly to the Section of Maternal and Child Health, Minnesota Department of Health. It will be used only for research purposes. Physicians are protected in such studies under the Minnesota confidential research law.

To obtain complete and accurate information requires the thorough study of clinical records by a trained staff. Even a limited study of an adequate sample of the more than 80,000 live births would require considerable time, staff, and funds. This is the preferred approach but is not feasible at this time. Until such time as such a study becomes possible, these questions on birth and fetal death certificates will throw some light on the many problems in maternal care.

Dr. Rosenfield is Director of Division of Special Services and Mr. Brower is Deputy Executive Officer, Minnesota Department of Health.

CONFIDENTIAL MEDICAL REPORT

ATTENDING PHYSICIAN: After completion, detach this section and MAIL DIRECTLY to the Section of Maternal and Child Health, Minnesota Department of Health, University Campus, Minneapolis 14, Minnesota
This information is to be used only for scientific purposes of the State Department of Health

Complications of Pregnancy, Labor and Delivery (Check at least one item in each column)

Related to Pregnancy	Not Related to Pregnancy	Labor	Operative Procedures
<input type="checkbox"/> NONE <input type="checkbox"/> PREECLAMPSIA <input type="checkbox"/> ECLAMPSIA <input type="checkbox"/> HYPERTENSIVE DISEASE <input type="checkbox"/> PERNICIOUS VOMITING <input type="checkbox"/> ANEMIA <input type="checkbox"/> HYDRAMNIOS <input type="checkbox"/> MULTIPARITY <input type="checkbox"/> OTHER—SPECIFY <input type="checkbox"/> HEMORRHAGE <input type="checkbox"/> ANTERPARTUM <input type="checkbox"/> INTRA PARTUM <input type="checkbox"/> POSTPARTUM	<input type="checkbox"/> NONE <input type="checkbox"/> HEART DISEASE <input type="checkbox"/> DIABETES <input type="checkbox"/> SYPHILIS <input type="checkbox"/> TUBERCULOSIS <input type="checkbox"/> PYELITIS <input type="checkbox"/> HYPERTENSIVE DISEASE <input type="checkbox"/> NEPHRITIS <input type="checkbox"/> OTHER—SPECIFY	<input type="checkbox"/> NONE <input type="checkbox"/> PLACENTA PREVIA <input type="checkbox"/> PREMATURE SEPARATION OF PLACENTA <input type="checkbox"/> PROLAPSE OF CORD <input type="checkbox"/> ANOMALY OF CORD <input type="checkbox"/> BREECH PRESENTATION <input type="checkbox"/> OTHER MALPRESENTATIONS—SPECIFY <input type="checkbox"/> CONTRACTED PELVIS <input type="checkbox"/> OTHER DYSTOCIA <input type="checkbox"/> OTHER—SPECIFY	<input type="checkbox"/> NONE <input type="checkbox"/> OUTLET FORCEPS <input type="checkbox"/> LOW FORCEPS <input type="checkbox"/> MID FORCEPS <input type="checkbox"/> HIGH FORCEPS <input type="checkbox"/> CESAREAN SECTION <input type="checkbox"/> BREECH EXTRACTION <input type="checkbox"/> PIPER FORCEPS <input type="checkbox"/> INTERNAL VERSION AND EXTRACTION <input type="checkbox"/> OTHER—SPECIFY
Date of first day of last normal menses		Date of first prenatal visit	
Was mother blood tested for RH factor?		Mother previously RH sensitized?	
<input type="checkbox"/> NO <input type="checkbox"/> YES: Positive <input type="checkbox"/> Negative		<input type="checkbox"/> YES <input type="checkbox"/> NO Previous RH neg. baby <input type="checkbox"/> NO <input type="checkbox"/> YES Living <input type="checkbox"/>	
Serologic Test for Syphilis:		Other blood dyscrasias: Specify	
<input type="checkbox"/> YES <input type="checkbox"/> Result: <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO If yes, describe: Congenital Malformation of Infant: <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> Dead <input type="checkbox"/>	

It is recognized that physicians are busy, and therefore, they will not be queried regarding unreported items in the confidential report. However, it is recognized that physicians are vitally interested in improving the standards of care and so it is anticipated that they will cooperate voluntarily in this simplified report, knowing that the data will be utilized for study. Periodic re-

ports of the findings will be disseminated to physicians for their information and guidance. We know of no other method which, for the same amount of effort, can secure so much pertinent data. The accurate completion of this confidential section will be most useful in studies of obstetric and newborn experiences, and will contribute to medical knowledge.

UNIVERSITY HOSPITALS REPORT BUSIEST YEAR IN HISTORY

University of Minnesota Hospitals cared for more patients during the year ending June 30, 1957, than in any previous year, according to the annual report of Ray M. Amberg, hospitals director, made at the annual staff meeting, December 20.

A total of 14,953 bed patients were admitted during the year ending June 30, 1957, and 119,683 visits were made to the out-patient department.

In the 1956-57 period, 925 more patients were admitted than during the previous year, and out-patient visits increased 3,314 visits over 1955-56. Average stay of bed patients was 12 days, in comparison to the 13-day average stay a year ago.

Daily average population of the hospitals during the last fiscal year, Amberg reported, was 508—six fewer patients per day than for the year before. Days of hospital care provided patients during the year were 185,434, as compared with 188,284 in 1955-56.

The University Hospitals' total of 666 beds—78 of them in the Variety Club Heart Hospital—will be increased by 80 beds next fall, when the Masonic Memorial hospital will be completed.

The cost of operating the hospitals' in-patient department still is rising, Amberg pointed out in his summary.

Expenses per patient day during the year ending June 30, were \$29.83, an increase of \$1.65 over the previous 12-month period.

Surgeons performed 9,922 operations in University Hospitals during the year, an increase of 1,137 over the previous year's total of 8,785 operations.

The 119,683 visits to the out-patient department include those of 20,377 new patients. During the 1955-56 fiscal year, 116,369 out-patient visits were recorded. Cost per patient visit last year amounted to \$5.98, an increase of 20 cents over 1955-56.

In operation since 1909, the University Hospitals serve as a training ground for more than 500 medical students in addition to more than 900 student medical technologists, nurses, x-ray technologists, physical and occupational therapists, social workers, dietitians, pharmacists and dentists. Their work is carried on in the hospitals and out-patient department under the direct supervision and guidance of a staff of full-time and part-time instructors.

University Hospitals rules require that each patient must be referred for admission by his family physician or by a physician in his local community.

Editorials

JOHN F. BRIGGS, M.D.
ARTHUR H. WELLS, M.D.
HENRY G. MOEHRING, M.D.

GOVERNMENT

Last month I pointed out that government, like medicine, is dedicated to the welfare and happiness of human beings. Both are essential to our well-being. Lack of adequate medical care can result in pain, suffering, and death. Lack of adequate and effective government can result in poverty, unrest, crime, and even war. Unless governments today can work out programs and policies that can prevent nuclear warfare, our present civilization and future generations are threatened. Truly, in government today, we need the utmost in ability, integrity, and understanding of human problems.

Yet, as I have pointed out, whereas the practice of medicine engages only those who are highly qualified and well trained, the practice of government involves every voter as well as those elected to public office. Citizen participation in government is of increasing importance. I believe that we can make a valuable contribution to better government by encouraging and increasing such citizen participation on many different levels.

The primary level of citizen participation in government occurs, of course, on election day. But I would urge, not only more informed voting, but also increased citizen participation in the partisan political activity that precedes election day. For politics is an integral part of government, and our party system is absolutely essential to the functioning of our free, democratic government.

Another level of citizen participation which, I believe, offers great possibilities is that of co-ordinated community action to solve community problems. We have, for example, begun to develop such participation to solve problems of children and youth. Last year in Minnesota, town meetings on these problems were held in 162 communities. The participants made recommendations which were later discussed in our state-wide Governor's Conference on Children and Youth.

Such citizen participation involves not only state and local governmental agencies, but also volunteer organizations and individuals that are interested. People participate on a level at which they are familiar with problems and needs. Their

volunteer services are of immeasurable value, and are willingly and eagerly given.

Perhaps one of the most effective areas in which volunteer services have assisted in Minnesota, in a function for which the state government holds responsibility, is in the field of mental health. In co-operation with every mental hospital in the state, citizen volunteers have made invaluable contributions by their services to patients. Their activities have brought about a far better community understanding of the problems and needs in the mental health field.

I am hoping that we can develop co-ordinated volunteer citizen activity on a community level to meet and solve many of the problems of our increasing numbers of older citizens. Such co-ordinated programs should include activity in the fields of education and recreation, health, employment, housing, and many others. Medical advance has increased our life span phenomenally in the last few years. It is our responsibility to see that the added years are happy and productive ones.

Finally, I have found that citizen participation on special state-wide committees can make invaluable contributions to government. The Governor's Advisory Committee on Vocational Rehabilitation illustrates such contributions. Outstanding physicians on this committee have given of their time and ability to develop a greatly improved program for the rehabilitation of the physically handicapped in Minnesota.

All these forms of citizen participation are of real value to government in that they help to provide services essential to our people. And because they bring about a better understanding of government and a deeper interest in its problems, they make more effective citizens of those who participate.

ORVILLE L. FREEMAN,
Governor

A RATIONALE FOR PROTEIN

The emphasis of today's advertising on protein as a nutrient has increased the nutritional guidance the physician must give to his patient.

One reason for the popularity of the term

MINNESOTA MEDICINE

protein in advertising campaigns may be the concept held by laymen that protein lacks calories and is, therefore, particularly suitable in the reducing diet. This concept has become so well established, one is seldom reminded that each gram of protein furnishes four calories: the same amount of energy that is furnished by carbohydrate. The isocaloric character of these two nutrients should be a basic part of any nutrition story.

Today's advertising also dwells on the specific dynamic action of protein. Even physicians sometimes fail to remember that this stimulatory effect, which can be demonstrated in experimental animals fed a pure protein diet, is nullified when protein is combined with fat and carbohydrate as it is in any human diet.

Protein consumed over and beyond that required for growth and replenishment of tissues is deaminized. This leaves a non-nitrogenous residue which, like carbohydrate, may be used for energy. An excess beyond energy needs can be stored as body fat. Since protein is the most expensive part of any diet, its use to fulfill the roles of carbohydrate and/or fat is most wasteful. Current research is focusing on more economical ways to achieve an ideal balance of nutrients in which carbohydrate and fat are present in sufficient amounts to save protein for its specific functions of building and repair.

Under consideration at present are the amino acid contributions of the "partially incomplete" proteins in plants when these are supplemented with small quantities of the "complete" proteins usually found in animal foods. Excellent evidence indicates that humans need less of the so-called "complete" proteins in conjunction with the "partially incomplete" proteins than experimental animals do. Rats, for example, which were fed a predominantly bread diet. (found adequate for a group of European children) failed to grow as well as the control animals receiving a diet higher in protein.

This finding was part of a study by Drs. R. A. McCance and E. M. Widdowson* who attempted to determine the relative nutritional values of whole wheat and white flours of various extraction rates. Approximately 300 children (ages four

to fifteen) were maintained for a year on a diet consisting mainly of bread made from flour, water, yeast, and salt only. These investigators observed excellent growth and no signs of nutritional deficiencies during the year's duration of the experiment, even in the groups which received 75 per cent of their protein from white bread. They found that for these children, the average intake of 9 grams of animal protein and 6.5 grams of protein from plant sources, other than bread, adequately supplemented the bread protein.

After twelve months of observation the children were divided into two groups. One group served as controls while the other received a milk supplement which almost tripled their animal protein intake. This phase of the experiment lasted for six months. The control group of children, receiving no milk supplement, developed to the same extent as those receiving the supplement—further evidence of the protein adequacy of the predominantly bread diet.

The protein of enriched bread made in the United States approaches that of the predominantly bread diets of McCance and Widdowson. Enriched bread, on the average, is made from a formula requiring 4 pounds of nonfat dry milk for each hundred pounds of flour. Investigations under way reveal that this ratio of milk protein to wheat protein provides a combination of amino acids which, on the basis of present knowledge, approaches the nutritional ideal.

AMERICAN INSTITUTE OF BAKING

THE SUPREME COURT'S BLOW TO McCARTHYISM

The nine men who compose the Supreme Court of the United States come slowly and cautiously to their decisions. The case of the Californian Communist leaders who were acquitted last week began as far back as 1952. And the Court has just handed down rulings on other cases which also date back to the years when what is commonly called McCarthyism was sweeping the country.

What causes such delay? There are three reasons. First, a case moves ponderously through the complex machine of American justice—appeals, motions for re-hearing, new trials and review. Secondly, the Court itself is overworked. As a matter of fact, the justices are now putting in over-

*McCance, R. A., Widdowson, E. M.: Studies on the Nutritive Value of Bread and on the Effect of Variations in the Extraction Rate of Flour on the Growth of Undernourished Children. Medical Research Council. Report No. 287. London, England: 1954.

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time to clear their calendar. Lastly, as one justice remarked to me in a recent conversation, the Court does not rush its fences. Knowing that a great decision may have great consequences, may indeed reshape American society as well as American law, the justices will not lightly revoke laws passed by Congress or interfere with the actions of the government. Sometimes they will find grounds for a judgment which evade an important constitutional issue, or a straight challenge to existing law and practice.

Yet, when they are put to the direct question, the justices can act with courage and imagination—virtues more striking, perhaps, because some of them have little or no judicial experience on which they can fall back to justify the positions they take. They may be men like Chief Justice Warren, who have had long careers in politics, or university teachers such as Justice Frankfurter, or men whose lives had been spent in public service. Whatever their personal background or experience, however, they each bring something to their office—and each gains something from that office whether a man has been a Republican or a Democrat, whether he is a Catholic, Protestant, or Jew. Southerner or Northerner, the office elevates and dignifies him.

The Constitution drafted nearly 200 years ago has continually to be adapted and interpreted to the needs of modern Americans and that is done by the new men of the Supreme Court. That is why, in their current judgments, as in the sweeping decision three years ago that pronounced the death sentence upon the segregation of Negro school children, the justices must weigh social and political considerations along with the legal precedents.

In the past two or three weeks they have weighed the causes and the consequences of McCarthyism, and found that the extreme measures tolerated when anti-communism was at its peak in the United States do not match up to the standards of toleration and civil liberty required by the American Constitution. No one should minimize the impact of these rulings. In effect, the Court has destroyed the Smith Act, under which most prosecutions of leading and lesser Communists were launched. It has told the Government that it is not enough to charge Communists with advocating a conspiracy to overthrow the Government of the United States—there must be proof of a

real conspiracy: merely to show past or present membership of the Communist Party will no longer constitute grounds for conviction. The Court has also made it much more difficult for the Federal Bureau of Investigation and prosecuting attorneys to rely on hearsay evidence and on informers; it has ruled that a man cannot be forced to answer every irrelevant or contentious question that comes into the heads of congressional investigators; and it has insisted that academic freedom implies the right to explore even opinions that are politically unpopular.

It is too soon to predict how these decisions will work out in detail. I lived in the United States when what is loosely called the "witch hunt" was in full cry. Some things were done then—by the Government, by congressmen, by state legislatures and even the lower courts—which seemed to threaten American liberties. The Court has now declared in scorching terms that such abuses were reprehensible, avoidable, and unconstitutional. Is it late in the day to come to that conclusion? Not at all. It was clear to me when I was in the United States recently that the heresy-hunt was failing fast, and that public opinion was reacting sharply against its excesses. More recently still, the trial of the playwright Arthur Miller has evoked much critical comment. The Supreme Court has now given point and direction to that new feeling.—NORMAN MAC KENZIE, "At Home and Abroad," *Home Service*.

CAN YOU BE INSURANCE POOR?

The Established Physician

The physician who has practiced from five to ten years and who has been at least moderately successful, usually will have some specific objectives for his financial and estate plans, by now, and will have taken some steps to carry out those plans. Certainly he will consider what further steps should be taken to keep pace with his objectives, to keep his plans in proper balance and to keep them workable.

By this stage of his business life he will have an account or two at the bank, a few bonds and some life insurance as fixed value investments. He may own his home, an automobile, office equipment and perhaps a share in a partnership, as variable investments. It will be to his benefit to review his plans periodically to avoid leaning too far in one direction or the other.

EDITORIALS

The amount of life insurance the physician now owns will have been determined by the operation of many factors, including his responsibilities, earnings and personal beliefs in life insurance as desirable property. If in his early years of practice he has family responsibilities and a desire to have an estate for the protection of his wife and youngsters (in case he is taken away from them prematurely) he will recognize the logic of buying his estate on the installment plan, just as he is buying a home and car on the installment plan. Life insurance provides him with the opportunity to do just that—but without the risk of payments falling due after death or during disability, as is the case when other property is purchased on the installment plan. If he cannot buy the entire estate he wants even on the installment plan (and he needs \$30,000 to \$40,000 more than his neighbor who has Social Security to do the same job), he may purchase part of it with permanent life insurance and "rent" the balance with term insurance. When he "rents" part of the needed estate he will be given an option to buy that portion on a permanent basis at a later date when income permits.

A physician in his early thirties after having practiced for three or four years, told the life underwriter that he needs an estate adequate to provide the following if he were to have a fatal accident or be taken from his family prematurely by some other cause:

Estate clearance fund	\$20,000
(including a \$15,000 home mortgage)	
Annual net income for 20 years.....	4,000
Education Funds for his 3 sons.....	5,000 for each

He was told an estate of approximately \$100,000 was needed to do the job. He was unable to buy an estate of that size even on the installment plan because of the annual installment required. However, he could afford \$75.00 per month for family security. With this premium he could purchase \$25,000 permanent life insurance and "rent" \$75,000 with term insurance. And, by renting the \$75,000 he preserves the right to make the \$75,000 or any portion of it a permanent part of his estate, later, when he will be in a better position to pay the installments required by a larger permanent estate.

Is he "insurance poor," as some of his friends say, because he owns \$100,000? Or, isn't he ver-

itally "insurance rich" without paying premiums that would make him "poor?"

Even at that he may be "leaving his change on the counter" if he does not take advantage of the settlement options on his insurance and the accompanying tax advantages in arranging the pay-out to his family following his death. The entire proceeds, of course, could be paid out in one sum to the widow. But is an arrangement a good one when it places on the widow the responsibility of deciding how to use this large sum of money at such a critical time?

Consider this \$100,000 insurance estate and the job it is intended to do. It is anticipated that \$20,000 will be needed to settle the estate including the mortgage on their home. The balance of \$80,000 paid out over the growing-up years and providing \$5,000 for education of each of three sons can be set up in several ways. Under one arrangement this \$80,000 will pay out in excess of \$100,000, including over \$20,000 of tax-free interest, taking advantage of a new provision in the Internal Revenue Code of 1954. Under another arrangement the same pay-out of \$100,000 from \$80,000 of proceeds will put the \$20,000 interest in a taxable category. However, both arrangements have the advantage of experienced management by the life insurance company and both provide an assured income.

Lack of proper planning has been costly for many insurance buyers, causing them to "leave their change on the counter" while creating hardship and misunderstanding for their beneficiaries.

Whether or not you want to have your life insurance planned in this way, is up to you. But it costs no more to use the settlement options and the allied services of the insurance company to carry out your wishes for the financial security of your family.

HERBERT F. MISCHKE, C.L.U.

SAFETY GLASS AND YOUR CAR

When considering safety factors afforded by the glass in your car, it is well to assure yourself that you have the finest quality of glass, that you have the utmost quantity of vision available, and that you keep your windows clean and in good operating conditions as is the universal rule with all other safety equipment.

But there is a further important factor in your

driving safety—your eyes. You need the kind of glass and the controlled conditions which will afford you the most comfort and the least fatigue.

Investigations at the Mayo Clinic have led to the conclusion that 25 per cent of an individual's total physical energy is used in the simple task of seeing. Poor visual conditions increase that percentage. Difficult seeing tasks call for more energy. A driver threading his way through heavy traffic at 40 to 50 mph certainly calls for more physical energy for seeing than does a person sitting in a chaise lounge in a serenely shaded garden area looking at flowers, trees and guests.

Therefore, the first helpful hint to the motorist is to be sure that he has safety plate glass in all his car windows. The brain automatically corrects for visual distortions so that most of the time we are not conscious of the continual outpouring of physical energy just to see reasonably clearly in our moving car. It stands to reason that the clarity of vision through safety plate glass saves much of energy wasted in looking through wavy or slightly distorted window glass.

Glare from the bright sky is another cause of fatigue on the highway. The modern automobile offers methods of reducing this cause of driver inefficiency. First, there are adjustable sun visors to shade the eyes. But they have the occasional temporary disadvantage of hiding a suspended traffic light unless viewed at a considerable distance.

So, through the windshield glass, another device is offered to reduce sky glare. Beginning at a point above the driver's line of vision for viewing traffic conditions, the broad windshield has been shaded with a band of neutral color, blending well with the natural tones of the sky. This shading is an almost imperceptible tone adjacent to the clear area of the windshield and deepens toward the top of the windshield. The light meter reading is almost halved by this method. Also this neutral color enhances color values and makes it even easier to differentiate between the red, yellow and green colors in traffic lights.

This shaded windshield comes in combination with a special type of heat-absorbing plate glass which has the added physical property of filtering out the infrared rays which carry a large part of the heat energy of the sun. Because of its slightly greenish tint the question has sometimes been raised as to its effect on driver vision. Many im-

portant and exhaustive tests have been conducted over more than ten years on this particular point.

Most thorough of these tests indicated that, at night, visibility was reduced *at the threshold of vision* by 3 per cent. Thus if a driver, looking through a standard windshield, were able to see an object in the light of his headlights at a distance of 200 feet, the same driver, looking through a heat-absorbing windshield would be able to see the object at 194 feet. If in both cases, he was traveling at 40 mph, and if in both cases his eyes were focused on the exact spot where the object first became visible, he would see the object 1/10th of a second later, looking through heat absorbing glass. But if, as would almost always be the case, his eyes were focused elsewhere on the road until the object was within the threshold of vision—say at 190 feet, he would see the object through either windshield at exactly the same time. From that point on, as the object is approached, there is no measurable difference.

Since the tinted and shaded glass tends to reduce the fatigue from sky glare during daytime driving, the driver who goes on into nighttime driving is less eye-weary. Most scientists feel that his relative freshness would more than compensate for the almost negligible measurable difference, leaving a balance of safety favoring the heat-absorbing windshield. There are between twelve and one-half and fourteen million cars now on the road with the tinted safety glass purchased as an extra option. A large percentage of car owners who prefer the glare-reducing tinted glass are repeat purchasers basing their preference upon personal experience.

Thus by his choice of the safety plate glass in his car one may add glare reduction, eye comfort and reduce normal driving fatigue.

WILFRID HIBBERT

Libbey-Owens-Ford Glass Company

CONFESSIONS OF A HOBBYIST

Music

It is, perhaps, belittling to write of serious music as a hobby, because it becomes a part of one's life. My love of music goes back to boyhood in Cambridge, Massachusetts, where, as a matter of routine, everybody went to hear the Boston Symphony Orchestra and the Kneisel Quartet. I studied piano eight years, and organ three, and, when I went to Harvard, took every course in

theoretical music offered—harmony, counterpoint, orchestration, free composition, and the rest. I knew I'd never be good enough to make music a life profession, but comprehending something of how music is put together has added to my enjoyment a hundredfold.

In the first school where I taught, they had a small orchestra. Also, they had a big double bass, and nobody to play it, so I was drafted. A seventy-five-cent book "How to Play the Double Bass" was my instructor, and I sawed away on the big fiddle for five years. I doubt if I could play a note on it now, but I still work, intermittently, at the piano, with fingers still limber from years of typing my own letters. Mrs. Briggs is a real musician, a fine performer, and that creates great pleasure for me.

I marvel at the number of people who seem to enjoy listening to music with the naive idea that a composer does no more than create a succession of pleasant sounds. As I look at a great audience in Northrop Auditorium, I sometimes wonder how many of those there know that the first movement of almost every classical symphony is constructed as formally as a sonnet, or a good fifteen-minute speech. There is an introduction, a main subject, a bridge passage and a secondary subject, and this section is usually repeated so that the listener may know the material. A second section develops that material, and third section, almost identical with the first section, ends the movement with a peroration, called a "coda." If you know this, your whole picture of the music is clarified. Other movements have other conventional forms, not at all hard to recognize.

I have shown to groups of men and boys through the medium of projected photographs of orchestral scores (home-made) and phonograph records, how even a person who knows nothing of music can learn quickly to follow score. Up is up and down is down, and the structure becomes clear to the ear through the eye. I think I was one of the first to use this method, now widely used.

JOHN DEQ. BRIGGS

By providing a program of postgraduate education and a fuller utilization of educational media, medical societies, state and local, can do much to stimulate continued improvement in the quality and the thoroughness with which cancer detection practices are carried out in their respective areas.

JANUARY, 1958

JOURNEY INTO SPACE

Stockholm was on the brink of a major Trade Fair and a European Heart Conference, so of course taxis were at a premium. Our train for Lapland left at 4 p.m. and we felt quite sure that it would go without us, but by dint of vast patience, extravagant arm-waving and a large slice of luck, a taxi with an illuminated LEDIG sign drew in to the kerb, and we had met and conquered our first obstacle. The station was a seething mass of people—residents, tourists, trade delegates, and an extraordinary number of physicians from the most unlikely countries. We tracked down our platform at last, and found a motley crowd of cardiologists surrounded by mounds of luggage, and a small neat woman guide in the uniform of the Swedish tourist agency which had organized this pre-conference trip to the Arctic Circle. With enviable efficiency and an amazing command of most of the European languages, she shepherded her protégés toward their train, and in the minimum of time we found ourselves in a minute, but beautifully equipped sleeper.

The journey started without undue incident, and the hours of early evening slipped away while we watched, entranced, the Swedish countryside, lit by the sunset, unfolding beyond the dusty windows of the train. We had spent an intriguing half-hour exploring our compartment which the Swedes, with their passion for mechanical contrivances, seemed to have fitted with an incredible quantity of buttons, levers, and other more complicated gadgets, and we had discovered, to my chagrin, that the exciting-looking door which appeared to lead at the very least to a private bathroom, was thoroughly locked. This was borne out when the occupants of the next sleeper in their turn tried to force it open, and we found that it was in fact nothing more than a communicating door between the two. We enjoyed, a little later, an excellent dinner in the restaurant car—a meal which was enlivened by the appearance on the menu of reindeer steak, and by the delight with which the small Swedish girl opposite us achieved, in a burst of unsuspected erudition, an English "Thank you." After dinner we settled down in our compartment with our staple holiday reading, a couple of thrillers, but life was

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not to be without its own small excitements. At intervals the door into the corridor opened abruptly and heads poked themselves in to announce the sale of magazines, or tobacco, or, for all we knew to the contrary, merely to bid us good-night. This habit of walking in unannounced, though pleasantly companionable, had its hazards when the time came to get ready for bed, and it was a considerable relief to find that there was actually a lock we could use. G. turned it, and for a while all was peace. I had just got myself into a nightgown, not entirely Victorian in character, and was sitting on the edge of the bunk, brushing my hair, when an ominous clicking sounded from the corridor and I found myself facing the unembarrassed stare of a large man in official uniform. He said something politely but quite uselessly, and disappeared whence he came, leaving G. and me in a state of mingled consternation and giggles.

We were due at Riksgården around tea-time the following afternoon. The tour programme had announced grandly that we would be staying at the Lapplandia Tourist Hotel, from which we would make excursions, and the prospect sounded inviting, though perhaps a little incongruous in association with the wild, mountainous country through which we were now passing, with its lakes and peaks, and almost entire lack of civilization. I think, with the traveller's unquenchable optimism, we imagined suddenly rounding a bend and coming upon a charming little Swedish town, situated in beautiful unspoiled country, but oh most certainly boasting every comfort that the twentieth century can offer. The actuality was of course that we found ourselves deposited at a tiny wayside station, with untrammelled nature spreading in every direction, the only apologetic gesture that humanity had made being the railway line, a ski-lift, and a group of wooden houses that resolved themselves, upon closer inspection, into the Lapplandia Tourist Hotel—and as we left the train, it started to snow! In actual fact the Lapplandia was a ski-lodge, and an extremely comfortable one, with central heating, excellent food, and the most delightful staff that one could imagine, and having said good-bye to our visions of a smaller edition of the Grand in Stockholm, we did not regret them once—but we were a little disconcerted by the surrounding countryside. The lovely view from our windows of the deep, placid lake, the snow-clad peaks, and the unspoiled stretch of richly

glowing tundra was well enough, and indeed we praised it to the skies from the aesthetic point of view, but exploring it was another matter. Not one of the party, some forty strong, seemed to have conceived of the possibility of there not being such a simple amenity as a road, and it came as something of a shock to find that the much-vaunted excursions were not of the motor-coach, or even of the boat, variety, but on our own feet. The women, particularly, had no footwear suitable for trudging through snow-covered heath, and worse. But a little matter of that kind was of small consequence. The Lapplandia staff came to the rescue in no uncertain manner and by the first morning, every cardiologist and cardiologist's wife, was equipped with something that would do at a pinch—and in some cases, did just that! I was lucky enough to get stout walking shoes that fitted perfectly, but G. had to be satisfied with zip-up galoshes, which he first tried wearing over bedroom slippers, but finally padded with two pairs of thick woolen socks.

Chief of our excursions was the great Lap hunt. On our first walk, a nonchalant stroll over a sort of goat-track lasting a mere couple of hours, we were accompanied by a Swedish guide and a bounding Alsatian—presumably to do a St. Bernard act if anyone fell by the wayside. The guide stopped every quarter-mile or so and gazed at the surrounding peaks like stout Cortez in Darien, but as he spoke nothing but Swedish, and the members of his party could raise between them only English, French, German, Spanish, Portuguese and Egyptian, it was some time before we discovered that he was looking for Laps to show us. It is a curious fact that, like flowers in an English garden when one visits it, one never seems to go to a place at the right time to see its chief attraction, unless of course it happens to be something immovable, like St. Paul's, and so it was with us and the Laps. Almost all we knew about Lapland before we visited it was that it was famous for the Midnight Sun, reindeer and Laps. We were, inevitably, out of season for the Midnight Sun. The reindeer which apparently had appeared in scores to those at the front of the train, had all taken fright and disappeared by the time our rear coach arrived on the spot—and now there was not a Lap in sight. Our poor conscientious Swedish courier, who had promised us Laps, like lollipops to children on a school treat, was deeply con-

cerned, and in a fashion that seemed to us nothing short of miraculous, finally discovered that A Lap Family was still in the vicinity. The method she used involved complicated telephone conversations, but as telephoning a Lap encampment seemed about as fantastic as ringing up a Hottentot village, we forbore to go into the matter further. Enough that the Laps were there, and that we were to walk out and see them, reindeer skin tent, traditional costume, and all. The distance, we were told, was a mere four kilometres following a short train ride, and having hurriedly sat down and computed what it meant in mileage, we decided it was worth it.

We set out, accordingly, all forty of us, arrayed in a variety of garments that for piquancy and colour would have put any Lap to shame—it was cold enough to need plenty of clothing, but heavy overcoats would have been a disadvantage when walking, and the problem was solved with duffle coats, windbreakers, mackintoshes, and every kind of woolly. I worked out my own salvation by wearing G's pyjama coat under my sweater. The odd couple of feet which had to be turned up at sleeves and waist practically gave me another layer. In due course, we arrived at the end of the rail journey and, marshalled by our two guides, who were heavily laden with luncheon packs, we set out across the tundra, like a pale imitation of the Great Trek. The first stop came quickly and abruptly. We drew up in a group inside a large stockade, and were informed impressively that this was where the reindeer were corralled and branded. Naturally at another time of the year! We gazed round obediently for what seemed like about twenty minutes, but without discovering any new fact about the stockade, and then away we went again. This time there was no stopping. The path, if one might dignify it by such a name led away from the railway line, across marshland, over rocky outcrops, down greasy slopes, over perilously balanced duckboards which as likely as not, acted as a seesaw and plunged one into muddy swamp. Here and there a red mark on a boulder suggested the way, but for the most part one trusted in Providence and the guides. The views all the way were magnificent, provided there was time to look at them, and one was not busy with one's feet. After the first few miles the party had divided into three—an energetic vanguard, who had obviously spent all their lives trekking across the wide open spaces in their various homelands,

an American couple and ourselves in the middle, acting as a link, and a large and weary group coming on behind in a sort of pilgrim's progress, groping and stumbling and picking themselves up again. The hills stretched away interminably ahead, and the path to the Laps apparently did too. Breakfast was a long way behind, and lunch seemed destined to be far in the future. Now and then we had a moment of bafflement when the party in front seemed to have been swallowed up by the ground, but patient tracking of footprints would bring us up with them again, and finally, rounding a shoulder of rock, we came upon them all on the shore of a river. This had to be crossed in two leaky boats which could only carry about five at a time, and it was a hazardous process, to say the least. One of the boats had literally to be emptied after each crossing, and both needed constant baling while in mid-stream. However, to my permanent surprise, we all got over safely, and embarked upon the next part of our travels. Equally surprisingly, for we had now got used to the idea of walking for ever, this was a comparatively short stretch, and there at last was the Lap tent. Not exactly a thing of beauty, perhaps, but one cannot have everything, and it was picturesque in its way, with the flap open, a fire burning brightly inside, and a forest of little birch trees surrounding it cozily. The male Lap, the only one in evidence when we arrived, came entirely up to expectation with his brilliant costume of the traditional red and blue, and it was exciting to drink coffee made from his cheerfully hissing kettle, and to eat our long overdue lunch in the atmosphere of nomadic domesticity which surrounded the tent. Some washing hung on a roughly-made arrangement of birch logs, and we had not long to wait before the "housewife" appeared with the rest of the family. There were "oohs" and "aahs" of admiration for her gaudy embroidered dress, and the two children were surrounded in an instant. They too wore the red and blue garments that characterize the national costume, the baby boy's cap surmounted by an enormous scarlet pom-pom which made him look like some fantastic doll. Cameras clicked madly, coins changed hands, and the weary pilgrims relaxed comfortably in the knowledge that, at whatever cost, they had at last seen the Laps. It was a pity that a few of the more enterprising spirits, looking for fresh fields to conquer, walked to the top of the slope overlooking the tent, and found on the other side,

The House that the Laps Really Lived In, though disillusionment would inevitably have followed when something was produced from the depths of the tent and carefully handed round, and turned out, to our everlasting mortification and delight, to be a Visitors Book.

After this, the walk home could not fail to be a little of an anti-climax, particularly perhaps for a gallant Egyptian who suffered from arthritis and had spurred himself to the effort with an extra dose of cortisone. However, as someone remarked, it made an excellent exercise tolerance test for those cardiologists who believe in practicing what they preach.

PATRICIA M. BOURNE

The author is the wife of Dr. Geoffrey Bourne, chief cardiologist at St. Bartholomew's Hospital, London, England.

A LIVING TRUST

Let's say, simply, that it is a trust you set up during your lifetime, rather than one you might provide for in your Will. You sign a trust agreement—and your bank signs it; you turn over the securities or other properties to the bank to be held in trust—and the trust is "in business." Some people call it an *immediate trust*, and that is perhaps a better title. But "Living Trust" is standard.

Of course, your question is part of a larger question: What is a trust? Any kind of trust, whether founded on a Will or trust agreement?

The *legal* title to property is transferred to a trustee. However, the trustee has no *beneficial* interest in the property—only duties. His duties are to manage the property—prudently; to make it produce income—the highest income consistent with prudence; and to pay that income to some designated person or persons. (These are known as "income beneficiaries.") The document creating the trust—reading somewhat as your Will might read—will direct that upon the happening of certain events, such as the death of the income beneficiaries or their reaching stipulated ages, the trust shall be terminated. Then the trustee shall distribute the property, in such proportions as the trust document may direct, to a designated person or persons. (These are called "remaindermen.")

The same person may be both income benefi-

ciary and remainderman, as in the case of a son for whom a trust is created: the income to be paid to him until he is, say, thirty years of age, at which time—if he is living, of course—the principal is to be paid over to him. And the same person can be both the maker of a trust and its income beneficiary. Thus you can set up a Living Trust for your own benefit as long as you live—or until you decide to change or revoke it.

At this point you ask:

How can a Living Trust benefit me?

An immediate and measurable advantage is *management*. A trustee has a double job. A fair rate of income must be earned. At the same time, the principal must be conserved. For the protection of income beneficiaries and remaindermen, the law imposes certain standards of care upon trustees. They cannot deal with the property as if it were their own; they must remember always that it really belongs to you or your beneficiaries.

Therefore, banks make a *business* of trusteeship, where experienced people guide the selection of trust investments. Markets and economic trends are studied; specific industries and particular companies within such industries are analyzed. The studies are continuous. Then decisions are made—not by one man but by a responsible committee. Nor are decisions isolated; they are made within a framework of investment policy determined by a committee designated by the bank's Board of Directors.

You get *group judgment*, therefore—not individual whims, prejudices, or hunches. And back of the judgments are research and analysis.

Now, of this management you can utilize as little or as much as you please. You can reserve all ultimate decisions to yourself—or you can give the trustee sole responsibility; and there are all sorts of in-betweens.

Perhaps management is all you will require, leaving you free to devote *undistracted thought* and *uninterrupted time* to the demands of your business or profession. But a Living Trust can do far more than this for you.

After your death it can carry on just like a Will. The income can be paid to your wife—to your children—or others; and eventually the principal will be disposed of as the trust agreement may direct. And of course it is not necessary that you yourself be a current income beneficiary. Many Living Trusts are made for the immediate benefit of others; wives, children, grandchildren, relatives

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Nothing in the above is intended as legal advice.

EDITORIALS

further removed—anyone to whom an obligation is felt, or whom there is a desire to aid.

Thus a Living Trust may be set up to benefit "charity"—a word broad enough to cover any religious, educational, scientific, philanthropic or other purpose which is for the good of the public at large. Such a trust is often called a "Foundation"—but it is just a variety of Living Trust. Sometimes individuals are the immediate beneficiaries; the "remainder" goes to charity. There is much more that we can tell you about charitable foundations if you are interested.

You may ask:

Can I save taxes with a Living Trust?

You can—under certain circumstances. And almost any kind of Living Trust, whether or not it saves taxes, can save many expenses usually involved in the settlement of estates.

First, it should be explained that there are two kinds of Living Trusts. One is *revocable*: you can change or end it whenever you wish. Such a trust will save you no taxes; even though the income is paid to someone else, it will be treated as your income for tax purposes, and upon your death, the trust fund will be taxed as if it were part of your estate. But such a trust may pass free of estate taxes from the next income beneficiary to the ultimate recipients of the principal; and as mentioned above, certain expenses of estate administration may be eliminated or reduced. Not the least of the advantages of the Living Trust as a *Living Will* is that there is no interruption of the management of assets, or of the collection and payment of income, as there is in the settlement of estates by Will. Without recourse to any court, and normally without publicity, the Living Trust carries on for the benefit of those next in line.

The other kind of trust is *irrevocable*. You can't get the trusted property back and you can't change the income beneficiaries or remaindermen or shift their interests around.

An *irrevocable* trust is ordinarily made for the benefit of others of your family, and the designation of such beneficiaries is usually permanent and unchangeable. Such irrevocable gifts in trust may result in reduction of income tax burdens and savings of estate taxes, since present gift tax rates are lower than estate tax rates. However, careful thought should be given before making irrevocable

gifts in trust. As a rule a revocable trust is preferable because it can be changed to meet changing conditions.

Your final question may be:

How do I go about setting up a Living Trust?

As a first step, your bank can help you with the basic planning involved in the practical and financial aspects of living trusts. This can be most useful to you and to the lawyer of your own choice who will draw the trust agreement. He will tell you what you can do under the law, and how you should do it, to gain the maximum advantages taxwise—and otherwise. (There is much to trusts besides taxes.)

And of course—it goes without saying that your bank would be very pleased to serve as your trustee.

THE AMERICAN NATIONAL BANK
OF SAINT PAUL

MECHANISM OF THE ERYTHROPOIETIC EFFECT OF COBALT

It has long been known that cobalt ion increases the rate of erythropoiesis and eventually produces and maintains a polycythemia. More recent work has demonstrated that the earlier suggestion that cobalt exerted its effect by making the bone marrow anoxic is untenable. With increasing attention being paid to the role of the plasma factor, erythropoietin, in the control of erythropoiesis, and with the availability of simple, short assays for this hormone, the authors have investigated the possibility that cobalt may be effective through erythropoietin production. The data presented indicate strongly that cobalt enhances red-cell production by increasing formation of erythropoietin.

Male rats were given subcutaneous injections of $\text{Co}^{60}\text{Cl}_2$. Ten hours later, the animals were bled and enough blood withdrawn so that 20 ml of "cobalt plasma" was available for assay. The amount of cobalt remaining in the plasma was 0.21 micromole/ml. The cobalt plasma was assayed by the Fe^{59} incorporation method in starved rats using normal plasma with the same amount of CoCl_2 as the control. The incorporation of Fe^{59} into the red blood cells of rats that had been treated with these preparations of plasma was compared with that of rats treated with plasma from animals made anemic by phenylhydrazine.

The pronounced increase in the incorporation of Fe^{59} which was produced by the cobalt plasma cannot be the result of the presence of a small amount of cobaltous ion but can be interpreted as being the result of an increased amount of erythropoietin in the plasma. When erythropoietin has been characterized more fully, it will be possible to determine whether cobalt plasma contains the factor identical with that found in anemia plasma.

The authors accumulated evidence showing that certain of the properties of erythropoietin in anemic plasma are also common to those of the active factor in cobalt plasma.

While these parallelisms are not conclusive evidence that the material in cobalt plasma is identical with that in anemic plasma, they suggest that both types of plasma contain erythropoietic factors with grossly similar properties.—Goldwasser, E.; Jacobson, L. O.; Fried, W., and Plzak, L.: *Science*, 125:1085 (May 31) 1957.



HORATIO B. SWEETSER, M.D.,
President, Minnesota State Medical Association

President's Letter

A LOOK FORWARD

At the beginning of this new year, your new president brings greetings to the members of the Minnesota State Medical Association. He had hoped that this year might be passed in a relaxed fashion and that greetings could be pleasant and happy and that the routine work of the Association would go along without incident.

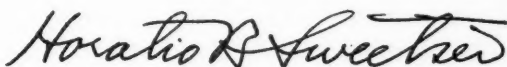
However, every year brings its problems and crises, and this year is no exception. In fact, your new president is a little awed by the responsibilities which will be placed on all of us. The goal of "what is best for the patient" always, with respect to the medical profession in this country, has been best approached by the private practice of medicine within the limits laid down by law. This method has seemed best to the profession, not only for the patient but for the community and for the state. A few years ago, those who thought that compulsory health insurance and government medicine gave better promise were defeated in their endeavors. Now government medicine is again advocated, this time for a smaller part of the population and with appealing features.

In the closing days of the last session of Congress, Aime Forand of Rhode Island introduced a bill, HR-9467, which would provide Federal Government payment for hospital and nursing home services and for surgery not of an elective nature. This payment would come from taxes paid by almost everyone to the Old Age and Survivors Insurance Trust Fund; i.e., Social Security funds, so called. This, of course, is a compulsory tax. Payments would be made for the care of anyone receiving, or eligible to receive, Social Security benefits. Everyone over sixty-five years of age, most women over sixty-two years, and the totally disabled over fifty years are eligible. Hospital care would be paid up to sixty days a year, or nursing home care up to 120 days a year, and surgical fees would be paid provided that the surgery is done by surgeons certified by the American Board of Surgery or by members of the American College of Physicians. Eligibility is based only on attainment of a prescribed age, regardless of income, and, therefore, invited reduction in the prescribed age. This, therefore, can be an introduction to compulsory hospital and surgical insurance for everyone.

There is a certain emotional appeal in the provision for added care for the aged. There is no question that provision must be made for this group, which now numbers 12 to 13 million. There should still be some responsibility carried by children, though the feeling of this responsibility is apparently becoming less. There are other ways of caring for the aged than by compulsory insurance.

Some, perhaps many, of the president's letters will be devoted this year to the work of the various committees of the State Medical Association. The threat of government medicine inherent in the Forand Bill cannot be met only by opposition. Medicine must cooperate and should be in the forefront in the effort to find other, more reasonable, more American ways of caring for the older citizens. Our scientific committee on "Geriatrics and Chronic Illness," with Dr. Leo A. Nash of St. Paul as chairman, is intelligent and active, or the Committee on Medical Service has here a golden opportunity to lead in the development of ways to care for the aged. County society committees on aging can cooperate with all the other activities in this field. Medicine, while of great importance, is only one facet in this problem, so effort must be made to join with all the others in the field.

If we all join together, we can accomplish two great things: defeat another attempt to socialize medicine, and, at the same time, take care of the old people in our midst who need care the most.



President, Minnesota State Medical Association

Medical Economics

Edited by the
Committee on Medical Economics,
Minnesota State Medical Association
George Earl, M.D., Chairman

FEDERAL HEALTH SPENDING

During the current fiscal year, the United States will spend approximately two and one-half billion dollars for all health and medical purposes. This is about the same amount as last year.

No less than twenty-three United States cabinet departments and independent agencies are engaged in some medical operations and approximately seventy-nine separate health-medical activities worthy of listing and describing. The Department of Health, Education and Welfare tops the list of all departments in health-medical spending with \$849,394,800. The Veterans Administration is spending \$849,374,000 within \$20,000 of HEW, but Defense Department this year drops back more than \$80 million to \$702,000,000, largely because the decreasing size of the armed forces means fewer uniformed men and dependents to care for.

Next comes Atomic Energy Commission, but its medical spending of \$40 million—mostly for research—is far down the column from the Big Three.

International Cooperation Administration—\$37 million. Nineteen additional departments and agencies have substantially less, the last item—the \$12,145 allocated to the congressional physician.

AMA MAPS ALL-OUT CONGRESS FIGHT TO PROTECT MEDICINE'S INDEPENDENCE

Effective opposition to the pending Forand Bill is possible only when members of the medical profession are well-informed.

In the interest of preservation of free enterprise in the medical profession, the medical press throughout the nation is conducting extensive informative campaigns in order that the pending legislation may be more effectively opposed.

An effective presentation is given in the following article by Dr. J. Lafe Ludwig, member of an AMA committee on legislation. Your earnest consideration is encouraged.

Confronted with new Congressional threats to the private practice of medicine, the American

Medical Association is girding for an all-out fight to preserve the profession's independence under our free enterprise system. At issue are proposals introduced in the last session to liberalize the Social Security Act to permit hospitalization of the aged, with the costs paid out of Social Security funds.

AMA Takes Action

The AMA Board of Trustees and the AMA Committee on Legislation, realizing the dangers inherent in such proposed legislation, have taken steps to combat the bills in the Congressional session convening in January. Acting on a recommendation of the Legislation Committee, the Board's Executive Committee approved appointment of a task force to give special attention to the issue. Edwin S. Hamilton, M.D., board chairman, appointed George M. Fister, M.D., of Ogden, Utah, as chairman of the task force and named the following members, all of whom have accepted: Frank C. Coleman, M.D., Des Moines; Robert L. Novy, M.D., Detroit; George F. Gsell, M.D., Wichita, Kansas, and James Duffy Hancock, M.D., Louisville. The new committee, with assistance of the various AMA departments, will conduct research designed to gather information on the problem of hospitalization of persons over sixty-five years of age. The task force will not be called upon to prepare or present testimony or engage in legislative activities in opposing the pending legislation. These functions will be performed by the committee of which I am privileged to be a member.

Free Government Medical Care

Focal point of the forthcoming fight is HR-9467, introduced by Rep. Aime J. Forand, Democrat of Rhode Island. This bill would increase the benefits payable under the Federal old-age survivors, and disability insurance program and provide insurance against the costs of hospital, nursing home and surgical service for persons eligible for old-age and survivors insurance benefits. The proposed law provides that a person eligible for surgical services could freely select

the surgeon of his choice provided that the surgeon must be certified by the American Board of Surgery or must be a member of the American College of Surgeons. . . .

Forand Receives AFL-CIO Endorsement

Congressman Forand, addressing the House on August 30, explained that he had introduced the bill in the waning hours of the last session to permit my colleagues in the Congress and individuals and groups to give the proposals thorough study in the period before the opening of the next session of Congress in January. Forand added: I am gratified that President George Meany of the AFL-CIO has endorsed my proposed amendments as necessary, sound and enlightened.

Need For Bill—Forand

Forand claimed there is evidence of the need for higher cash benefits and for better methods of meeting medical costs of the aged. . . . He said that early in the next session he intends to present an analysis of such evidence based on the current situation and the latest available studies. It is this so-called evidence that the AMA task force will attempt to refute by data collected in its survey. The proposed amendments relating to health benefits for OASI beneficiaries deserve special attention, Forand stated. They have been limited deliberately to facilitate enactment of this much-needed measure in 1958.

Increased Benefits Proposed

Forand's bill would increase cash monthly benefits about 10 per cent and the principle of relating benefits to earnings would be reapplied by increasing the earnings ceiling for contribution and benefit purposes from \$4,200 to \$6,000 a year. For a person with average monthly earnings of \$200, therefore, the new primary insurance would be \$85.80 instead of \$78.50. With a \$6,000 wage base ceiling, the maximum individual benefit would become \$151.80 instead of \$108.50. Discussing his proposed new program of health benefits, Rep. Forand said: They (the eligible aged) would be entitled to sixty days of hospital care and to subsequent skilled nursing home care, up to a total of 120 days in a twelve-month period. The cost of their surgical care would also be covered, with free choice of qualified doctors. According to best available estimates, this bill

would add about 1 per cent of payrolls to present level premium costs. Contribution rates for employer and employee would therefore be increased by .50 per cent each in 1959, and the self-employed would pay .75 per cent more on their incomes up to \$6000. The increase now scheduled for 1960 would be postponed to 1961.

Free Drugs, Appliances, Medical Care

Forand said his program would provide hospitalization and nursing home care for many who are not able to pay for private insurance against the cost of such care. Twelve or thirteen million persons would thus receive the protection of such payment in the first year, Forand told the House. Whether or not they retired, men would be protected at age sixty-five, if they had made sufficient contributions in covered employment or self-employment. Women would similarly be eligible at age sixty-two without having to take the actuarial reduction in benefits provided in present law. Forand said that hospital services, which would be paid include the services, drugs, appliances and medical care ordinarily furnished by the hospital to its bed patients. He added:

Free Hospital Care

The insurance would cover semi-private accommodations if available unless other accommodations are required for medical reasons—in short, those services ordinarily provided in plans such as the Blue Cross. Such services would be covered when provided by a licensed hospital which had entered into an agreement with the Secretary (of Health, Education and Welfare), except that the costs would not be paid for care in: any tuberculosis or mental hospital, any Federal hospital, or any other hospital for hospital services which it is obligated by contract with the United States to furnish at the expense of the United States; or any hospital furnishing services at public expense, except when a person receiving such services must meet a means test. . . . Services provided by a nursing home would be covered by the insurance provided by the bill only if the individual has been transferred to the nursing home from the hospital on a doctor's certification that the services are necessary for an illness or condition connected with that for which the hospital was treating him.

Free Surgical Care

Surgical services which would be paid for include those provided in a hospital and which are certified as necessary by a licensed physician. Oral surgery would be included when provided in a hospital and certified as necessary by a licensed physician or dentist. Surgical services provided in the outpatient department of a hospital or in a doctor's office would be included in case of emergency or for minor surgery. Fees would be established by agreement between the Secretary of Health, Education and Welfare and qualified doctors, either individually or through medical associations, Forand said. Nothing in the provisions of the bill or in agreements with hospitals, nursing homes or physicians shall be construed to give the Secretary of Health, Education and Welfare supervision or control over, first, the practice of medicine or the manner in which medical services are provided; second, the details of administration or operation of hospitals or nursing homes; or third, the selection, tenure or compensation of hospital or nursing home personnel.

FORTY-FIVE MILLION UNDER FORTY STILL HAVE NOT HAD SALK VACCINE

According to recent statistics released by the National Health Survey, 45,000,000 persons under forty years of age still have not received Salk poliomyelitis vaccine. The new data, based on information obtained in household interviews, also shows the following: 5,000,000 under forty received one injection, in contrast to earlier estimates of 17,000,000; 25,000,000 have received two shots, instead of the earlier estimate of 28,000,000; the number receiving the full three shots has increased from an estimated 28,000,000 to 34,000,000.

HIGLEY RESIGNS AS VA ADMINISTRATOR

Harvey V. Higley has resigned as administrator of Veterans Administration, asking that he be relieved of his duties "as early as convenient." Mr. Higley, who has headed the VA since July 22, 1953, wants to return to private life. In accepting the resignation, President Eisenhower said, "you have performed a valuable service . . . outstanding achievements have been brought about under your capable administration." Mr. Higley was chairman of the board of the Ansul Chemical Co. of Marinette, Wisconsin, before coming to VA.

ESSAY CONTEST PARTICIPATION URGED

The Minnesota State Medical Association will participate in the local sponsorship of the 1958 Association of American Physicians and Surgeons' Essay Contest for high school students.

The state association is offering \$200.00 in prizes for the four best essays in Minnesota and the Association of American Physicians and Surgeons offers \$2,675.00 in fourteen national prizes. The first prize is \$1,000.00.

"The Advantages of Private Medical Care" or "The Advantages of the American Free Enterprise System" are essay topic choices.

Essays must be completed by March 1, 1958, in order to be judged at a county level before March 15, 1958, and at the state level, before April 1, 1958.

Dr. J. A. Cosgriff, Sr., Olivia, has been named the chairman of the state committee. He has written the officers of every society urging them to encourage the society to sponsor the essay contest in all local schools. The Woman's Auxiliary has agreed to do the leg work and help sponsor the project.

Already Kandiyohi-Swift-Meeker Medical Society is offering \$25.00, \$20.00 and \$15.00. The Renville-Redwood Society is giving \$60.00 in prizes for each county.

All societies and members that are interested in furthering the project are asked to write Dr. Cosgriff for further information and action.

NEW CANCER REGISTRY SYSTEM

An improved system for recording, indexing, filing, and follow-up of cancer cases has been announced by the Physicians' Record Company, publishers of medical and hospital record forms. Adoption of a registry system is necessary for approval of the cancer program in a hospital or clinic.

Conforming to specifications in the *Manual of Cancer Registries and Cancer Clinical Activities* of the American College of Surgeons, this system of standardized forms provides a Cancer Accession Register, a means of indexing and filing cancer case records, and a follow-up control. Sites and histological types of tumors are classified in accordance with the *Standard Nomenclature of Diseases and Operations* to create a cancer index. Maintaining the system will demand a minimum of time from the medical record librarian. A new Cancer Registry Summary Sheet, a new Cancer Registry Index Folder, and original colored plastic signals for indexing and follow-up are parts of the system.

For samples and detailed information, write to Physicians' Record Company, 161 West Harrison Street, Chicago 5, Illinois.

Committee Action

Committee on Syphilis and Social Diseases

*Incidence of Venereal Disease
Tribute to Dr. Harry G. Irvine*

In spite of experience to the contrary elsewhere in scattered spots over the country, in Minnesota there has been a continuing decrease in the incidence of syphilis and gonorrhea for many years, including 1956.

Incidence of Venereal Disease

A total of 196 cases of syphilis was reported in Minnesota for the year 1956; in 120 of them the patients were more than fifty years old, and twenty-seven were younger than thirty years. In these 196 cases, 139 patients were married, widowed, divorced or separated.

It is remarkable that in only twenty-one cases was the disease listed as primary or secondary. Among the other cases, the disease was early latent in nineteen, late or late latent in 151 and so-called congenital in five. Again this year, no baby was born in Minnesota with syphilis, a record which has been sustained for five of the last six years.

The total number of blood tests carried out for civilians was 197,728; for the armed services, 4,491. Specimens of cerebrospinal fluid tested numbered 3,939. Of twenty specimens submitted from genital lesions for darkfield examination, only two were found to contain the micro-organisms.

As pointed out previously by Dr. H. G. Irvine (who deplored the practice), physicians continue to institute treatment for suspected early lesions of syphilis without prior establishment of the diagnosis of that disease. Also, examination of the cerebrospinal fluid is not being carried out in enough cases.

The incidence of reported cases of gonorrhea was reduced from 1,000 in 1955 to 778 in 1956.

Tribute to Dr. Harry G. Irvine

It is high time that the Minnesota State Medical Association pay formal recognition to the extraordinary efforts towards venereal disease control in public-health work contributed by Dr. Harry G. Irvine, who has served as director of the Division of Venereal Disease of the Minnesota Department of Health since 1918. Dr. Irvine long ago recognized the importance of epidemiologic and follow-up studies and of direct contact with physicians in private practice through the efforts of social-service workers. Many of the state health

laws and regulations were formulated under Dr. Irvine's direction, and are still effective. In 1936 Miss Lucy Clare Finley was brought in as executive assistant in charge of medical-social work in connection with venereal disease control. The recording of cases as reported by physicians and the follow-up studies have been conducted largely under the direction of Miss Finley and Dr. Irvine.

Minnesota throughout the years has enjoyed a high degree of freedom from venereal disease. Even during the war years the incidence of syphilis, based on reported tests, was less than 1 per cent.

In 1949 Dr. Irvine retired as clinical associate professor of dermatology and syphilology in the College of Medical Sciences at the University of Minnesota, and in 1953 he retired from active practice. For many years he served as chairman of this committee.

Dr. Irvine has at all times co-operated closely with physicians throughout the state in the investigation of venereal disease contacts, the reporting of cases and the follow-up of adequate treatment. As the picture of syphilis gradually changed after the introduction of penicillin, he has continued to advise physicians by mail and by personal contact. His contribution to public-health work in this field has been unequalled by anyone else in the states of the Union.

LOUIS A. BRUNSTING, M.D.,
Rochester, Minnesota,
Chairman

SOCIAL SECURITY

The government, while slow to acknowledge anything wrong with the Social Security System, underestimated the demand for benefits. Women who could obtain benefits at sixty-two, sixty-three, and sixty-four decided to do so even if the payments were less than they would be at sixty-five. Farmers suddenly turned out to be older than expected. Some began to pay social security taxes on reported income of \$4200 which exceeded their income in prior years. Then they applied for benefits after paying taxes for six quarters. Many people who had retired and were well beyond sixty-five years of age, dug up jobs for themselves and paid social security taxes for eighteen months, thereby qualifying for benefits of from \$30 to \$108.50 monthly for life. Social security experts, in making their cost projections, underestimated the ingeniousness of the American people when Federal give-aways are as widely advertised as are social security benefits.

History of Medicine in Minnesota

NOTES ON THE MEDICAL HISTORY OF BECKER COUNTY

(Concluded)

G. G. HAIGHT, M.D.

Audubon, Minnesota

Dr. John Brainard Carman, one of the pioneer citizens of Detroit, was an 1879 graduate of McGill College, Montreal, Canada. Born in Iroquois, Ontario, he came directly to Detroit upon graduation; he received his license December 28, 1883. Dr. Carman devoted his life to the noble work of ministering to the sick and unfortunate. In every home he frequented, the announcement of his death was followed by a deep and genuine sorrow, for Dr. Carman had not only been the family physician; he had also been the advising friend, whose smiling face and cheery presence and word of confidence brought renewed hope to many homes which seemed threatened with disaster. He went about his work with little thought of self or of personal gain for more than thirty years. He made friends with all with whom he came in contact. In every relation to the community in which he lived, he was regarded by those who knew him best as a splendid example of the noblest work of God, an honest, manly man, a citizen of the highest type, and one whom it was deemed a privilege to call friend.

Dr. Carman died on September 13, 1913, at the age of fifty-eight. The attendance at the funeral was the largest ever seen in Detroit on a similar occasion. It was ironical that the doctor got a fishhook caught in his thumb and, like a doctor, thought not too much about it until it was too late. He had several sons and one daughter.

One son, **Dr. James Edwin Carman**, born in Iroquois, Ontario, on December 17, 1877, graduated from the Medical School at the University of Minnesota in 1901. After a very short time in Frazee, he joined his father and continued to practice in Detroit after the latter's death—with the exception of a short period around 1909 in Brooks, Red Lake County—until he retired in 1950 and removed to California.

Dr. John H. Carson graduated from McGill University Medical Department, Montreal, Canada, in 1881. He was licensed in Minnesota, November 14, 1883, and located in Lake Park. There he was listed in 1886 and 1890. He then moved to Duluth where directories list him from 1895 through 1909. Nothing more is known about him.

Dr. William E. Everley is listed in Polk's Medical Directory as practicing in Detroit from 1898 through 1902. Minnesota directories, however, list him there also in 1903 and 1905. It seems he did not graduate from a medical school. He was licensed by "1887 affidavit" on November 21, 1899 on the basis of his own statements that he was forty-two years old and that he had resided in Minnesota since 1864. He claimed that he started to practice as a student under the super-

HISTORY OF MEDICINE IN MINNESOTA

vision of a preceptor, a Dr. William Riley, in Stearns County before 1880, that he had practiced also in Todd County and Becker County, had taken a course of lectures at the Department of Medicine of Northwestern University at Chicago in 1885 and submitted to the Board of Medical Examiners a certificate from this University which he received in 1890.

He must have been of a restless nature or perhaps had difficulty in establishing a good practice, because we find him in Twin Brooks, South Dakota, in 1886, in Grey Eagle, Todd County, in 1890 and 1895, in Glyndon, Clay County, in 1896, in Wadena, Wadena County, in 1898, and in Detroit, from 1900 through 1905. After that, nothing is known about him. He never was listed in any of the AMA directories.

Dr. John H. Froshaug* apparently was of Scandinavian descent, but nothing can be found about his early or medical education. He practiced in Albert Lea, Freeborn County, from 1871 to 1877, though the *Enterprise* mentions his imminent departure in 1876. He was associated in the drug business there with Dr. Frank A. Blackauer. In July, 1877, he moved to Becker County, locating in Lake Park. In 1879, he was elected a delegate for Becker County to the Republican State Convention. He was coroner from 1880 to January, 1882.

Later, Dr. Froshaug moved to Twin Valley, Norman County, where he is listed in 1886. He died there on June 20, 1889.

Dr. Rowland Thomas S. Gilmore came to Lake Park in September, 1896, and remained there until December, 1899, when he left for Chicago to do postgraduate work.

Lake Park at that time had a population of about 400 and the only doctor was Dr. O. K. Winberg.

Dr. Gilmore was born in Toronto, Canada, December 12, 1869, and graduated from Trinity Medical College in 1895. He was licensed in Minnesota, October 13, 1896, by examination, though he was engaged by the Northern Pacific Benefit Association a year previously (in October, 1895) and he worked on the staff of the sanatorium of this organization at Brainerd until he moved to Lake Park.

He returned to Minnesota from Chicago in 1900, settling in Fosston, Polk County, where with a former classmate, Dr. Malcolm MacKinnon, he established a hospital.

In 1903, he moved to Bemidji, Beltrami County, where he stopped practicing December 14, 1947, because of illness. He went first to St. Vincent's Hospital at Crookston and in 1952 to the Rodwell Rest Home at Mahanomen, where he is still staying (1956).

Dr. Knute K. Halvorson practiced in Audubon from 1889 to 1913. He graduated from Hamline University in 1889, but was not properly licensed. He got into difficulties with the Board of Medical Examiners because he practiced without a license and because he supposedly practiced under a different name.

He was born in Norway on February 2, 1855. According to some information, he graduated from the Medical School of Hamline University in 1899. It is said that he returned to Norway in 1915.

Dr. Christian J. B. Hirsch (or Hursch) graduated from Rush Medical College, Chicago, in 1868. At first, he practiced in Black River Falls, Wisconsin. It is not certain when he moved to Minnesota, but he was licensed here in 1884 and he

*See Medical History of Freeborn County, MINNESOTA MEDICINE, December, 1948.

HISTORY OF MEDICINE IN MINNESOTA

practiced in New Ulm, Brown County, in 1891. In 1899, he came to Audubon where he developed a large Scandinavian practice. He died in Audubon on October 16, 1901.

Dr. Joseph G. Hodgkinson is listed in Detroit in 1886 and 1890. He may have been there before 1886, as he was licensed by examination on October 12, 1883, apparently three years before he graduated from the St. Paul Medical College (1886). In 1893, he was in Osage. In 1895 and 1898, we find him listed as practicing in Menagha, Wadena County, and from 1903 through 1909 in South Saint Paul. It is not known what happened to him after that.

Dr. Edward E. Hoit was born in Auburn, Maine, September 3, 1854. He graduated from the University of Michigan Homeopathic Medical College in 1878, from the University of Michigan Department of Medicine and Surgery in 1878, and from Rush Medical College, Chicago, in 1885. He is listed in Detroit from 1889 on.

He married Della Day, October 24, 1889, and one married daughter still lives at Detroit Lakes, as the town is now called. He was county physician from 1884 to 1887, from 1889 to 1891, and from 1895 to 1903.

Dr. Hoit was a very small man, but a courtly gentleman with a large fund of stories, some risqué, some otherwise. While Dr. J. B. Carman rode a bicycle to see his patients, Dr. Hoit was very partial to livery horses, and Dr. Weeks was one of the first to take up with the new cars. Dr. Hoit died at Detroit Lakes, April 4, 1925.

Dr. Thomas Howell, a graduate of Dartmouth Medical College in 1896, is listed in Frazee in 1898 when this town had a population of 279.

Dr. Samuel S. Jones was one of the pioneer physicians at Frazee. He was born in New York on February 23, 1849. His medical education was received at Rush Medical College, Chicago, from which he graduated in 1881. He was licensed in Minnesota by diploma on November 24, 1883. At first, he located in Minneapolis where he is listed as early as 1890. It seems he came to Frazee in 1897, as he was coroner there in that year, an office he held until 1899. He remained in Frazee until at least 1927, when he retired and moved to Minneapolis. He died in Minneapolis on November 12, 1934, at the age of eighty-five, from coronary occlusion and infarct.

Dr. Niles (also Nils and Miles) R. H. Juell (or Jewell) is listed in Lake Park in 1886 and 1890. He had graduated from Rush Medical College in Chicago in 1884 and was licensed in Minnesota, September 26, 1885. In 1895 and 1898, he is listed in Red Wing, Goodhue County, and in 1903 and 1905 in Benson, Swift County. In 1909 or before, he moved to Santa Rosa, California, where he was as late as 1927.

Dr. C. A. Lampanius was of Finnish descent. He was coroner of Audubon from January, 1876, to January, 1880. He graduated from the College of Physicians and Surgeons, Keokuk, Iowa, in 1878 and was licensed October 23, 1883. He therefore, started to practice before his graduation. He is listed in Audubon as late as 1890. From at least 1895 through 1905, he was in New York; in 1909 in Catonsville, Maryland. Nothing further is known of him.

HISTORY OF MEDICINE IN MINNESOTA

There is a possibility that his wife, too, practiced medicine, but no record of her could be found.

A **Dr. Lieman** is listed in Frazee in 1886. At that time, Frazee was a small village of 150 people. He was not licensed in Minnesota and no further information could be discovered.

Dr. Dexter J. Maltby was the first civilian physician to settle in Becker County. He was born in Watertown, New York, on April 25, 1843. During the Civil War, he served in a New York regiment. For a time, he was a prisoner of war and then returned to Watertown where he studied and received a certificate from the examining board in 1871. He settled in Detroit in April of the same year when this town was still quite new. He died in Detroit, June 8, 1880.

Dr. M. Morton, a physician of the "regular" school, is listed in Detroit in 1893. He was coroner from 1889 to 1903. Nothing more is known of him. (A **Dr. Howard McIlvain Morton** is listed in the records of the Minnesota State Board of Medical Examiners, but the list does not show him in Becker County.)

Dr. Aretus K. Norton graduated from the Chicago Medical College in 1872. It is not known when he came to Detroit where he is listed as practicing in 1886 and 1890. He was licensed October 11, 1883. From about 1895 to 1905, he was in Minneapolis and in 1909 in Duluth.

Dr. Emma Katherine Ogden practiced in Detroit for thirty-five years. She was born in Pittsburgh, Pennsylvania, on February 21, 1840, and graduated from the Woman's Medical College of Philadelphia in 1875. She was for a time a missionary of the American Board of Madura, India. She was licensed in Minnesota November 12, 1883. If it is correct that she practiced in Detroit thirty-five years, she must have located there about 1881. Dr. Ogden owned a drug store at Detroit and was vice president of the State Pharmaceutical Society. She died at Detroit on April 5, 1916, from pneumonia.

Dr. W. Thornton Parker graduated from the Royal University of Munich. For some time he resided in Boston, Massachusetts, and was surgeon at White Earth for a time before moving to Winona in May, 1881.

Dr. David Pyle was born in Ohio about 1825. In Minnesota, he settled first in McLeod County and became a member of the legislature in 1868. In the following year, he was appointed government physician at White Earth. In 1870, he settled on a claim in Audubon. He advised the early settlers to stick to their claims; he would warn the Indians at the Reservation that the settlers were armed and would fight for their rights. The Indians were displeased with the use of their hunting grounds for farming. Many of the early settlers stopped with Dr. Pyle until they could get some shelter put up on their claims. It is said he never turned anyone away as long as there was room for a bedroll in his home.

He obtained a commission as notary public for Alexandria, Douglas County. When Becker County was organized, he was appointed the first County Auditor, and in 1871 he was elected County Coroner. He must have been very popular because when he was to move to Monticello the pioneer settlers gave a banquet in his honor and presented him with a gold headed cane on which a chronicle of his helpful deeds to the settlers was engraved. He moved to Alabama in 1873 and died there about 1884.

HISTORY OF MEDICINE IN MINNESOTA

Dr. M. B. Smith was born on a farm near Hamilton, Ontario, in the year 1868. He graduated in medicine at the University of Toronto and started to practice medicine with an uncle at Wabashene, Ontario. He next practiced at Hagersville, Ontario, for three years. He then took and passed the State Board examination of the State of Michigan. In the early 1900's, he and his wife settled in Lake Park.

After selling his practice to Dr. R. M. Gunderson, he made insurance his main work. After fifteen years in Lake Park, he moved to Ottumwa, Iowa. Dr. Smith was a large man, resembling in appearance the late Charles Evans Hughes. He was very well liked and got along well with everyone. He died at Ottumwa in 1934.

Dr. Paul Sorkness was listed in Lake Park in 1898. He apparently moved there from Fisher, Polk County, where he practiced around 1896. Later, he moved to Fargo, North Dakota, where he practiced from at least 1903 on.

Dr. Sorkness graduated from the College of Medicine and Surgery of the University of Minnesota in 1895 and was licensed in the same year. While in Fargo, he was very active in North Dakota medical affairs. He was president of the State Medical Society, also of the State Board. He was also a railroad surgeon.

He died in Fargo on September 23, 1920, from cerebral hemorrhage, at the age of fifty-three years.

Dr. Byron F. Van Valkenberg was in Becker County in 1895. He was born in Marquette, Wisconsin, in April, 1864, and graduated from a medical school in 1893. He received his Minnesota license on July 7 of the same year. From Becker County, he moved to Long Prairie, Todd County, where he practiced many years until he retired.

Dr. Leonard Case Weeks was born in Hartland, Wisconsin, in 1869. Not much is known about his boyhood. He graduated from Rush Medical College in 1892, interned at the Presbyterian Hospital, and then taught Physiology and Anatomy at Rush. Dr. Weeks commenced the practice of medicine in Detroit in 1896, though he had been licensed in Minnesota in 1892. He maintained the Detroit Hospital from 1905 to 1926, with the exception of five years of this period when it was operated by nurses.

Dr. Weeks had the same large territory that most country doctors tried to cover in those early days, mostly with horses and buggy or sled. He soon was doing most of the surgery in the county and, for a country doctor, had a good bent in this direction.

Becker County was first settled by people of the same nationality as Dr. Weeks, but soon the Scandinavians began to come across the ocean, mostly through Quebec or Halifax and some through New York City. Dr. Weeks was interested in the Scandinavian language and became quite proficient in reading it. He also was interested in genealogy and traced his ancestors down from colonial times.

Dr. Weeks held many public offices, such as coroner and county physician. He was health officer from 1911 to 1925 (part of this time chief health officer) and mayor from 1909 to 1911. For nineteen years, he served as school director. He was a member of the Minnesota State Medical Society and the Clay-Becker County Medical Society. For some time he was examiner of the John Hancock Mutual Life Insurance Company, the MWA, RNA and AOUW.

After a quarter of a century of putting up with long drives over bad roads, cold winters, long hours at night, loss of sleep, disappointments, and, yes, the memory of mistakes and shortcomings, the doctor began to show the effects of these

HISTORY OF MEDICINE IN MINNESOTA

things. People began to call him "Old Doc," and looking in the mirror, he saw that something had made his hair white before his time. He was growing heavier, his cheeks looked a little too full, and, alas, he had a "bay window."

While the doctor was sitting in his office one day he felt a numbness in his left hand. The hand and arm were lying on his left thigh and he noticed that there was no pressure on the arm to make it numb. Then he moved the left foot and found it numb, too. The combination was suggestive, so he stood up and walked across the floor. He noticed that the left foot dragged and the toe of his shoe scuffed along the carpet and that he was unsteady in his walk. "Old Doc" had contemplated some such emergency. A somewhat radical increase in blood pressure, breathlessness on exertion, some rather hard beating of his heart, and a suspicious faintness the preceding summer had given him warning. He walked to the phone to call a friendly doctor and asked a friend to bring his car down to the office to take him home. His wife met him at the door and ushered him in with her usual calmness, for the doctor and his wife were not given to expressions of emotion, at least not outwardly. He went to bed and in a few days it was decided that a long rest was necessary. The doctor and his wife packed up and took a trip to the West Coast, a trip which they had long hoped for but under entirely different conditions. After three months of traveling through the West, "Old Doc" began to gather strength and he and his wife returned to what they called home. He was tired but went to work. Perhaps the doctor was too ambitious, but it must be admitted that it seemed as if too many of his old clients looked the other way when they met. While attending a football game in Minneapolis, he suffered another stroke and in a few weeks died at Detroit on December 19, 1926, at the age of fifty-seven years, nine months.

Dr. B. Dudley Williams graduated from the University of Louisville Medical Department in 1884. He is listed in White Earth in 1896. There is no record of his being licensed in Minnesota, nor any other information.

Dr. Oesteu K. Winberg was born in Nordfjordeid, Norway, July 20, 1864. He came to the United States when seventeen years old, graduated from Augsburg College, and completed the course in medicine at the University of Minnesota in 1892. He was licensed on April 7, 1893, by examination.

After practicing at Willmar, Minnesota, for one year, he came to Lake Park, where he practiced until his health forced him to give up his life work.

He married Alpha Carlson, who was an ideal wife and physician's helpmate. When one of the children swallowed a piece of silver money, he said, "Mother, what shall we do?" She merely turned the boy upside down, hit him on the back, and out rolled the money.

Dr. Winberg spent the year 1902 studying in Germany and visiting in Norway. He returned again in 1910 when he gave 1,000 Kr. to a hospital in Eid, Norway and 1,000 Kr. to a forest development. Upon returning to this country, he took postgraduate work in New York.

He was very much interested in cancer. One of his prized possessions was a cane given to him by the Minnesota State Medical Society. He was the active organizer of the movement that created the Sand Beach Sanatorium and was one of the directors for twelve years. He was president of the school board at the time of his death, December 27, 1930. He was buried on his thirty-fifth wedding anniversary. His practice was taken over by Dr. R. V. Jolin.

Acknowledgment

We wish to acknowledge help from many sources, especially that of Dr. R. Rosenthal. Without his aid, many doctors would have been overlooked.

Meetings and Announcements

STATE

MINNESOTA STATE MEDICAL ASSOCIATION, 105th annual meeting, Minneapolis, May 22, 23 and 24, 1958. Business sessions and exhibits, Minneapolis Auditorium. Headquarters, Leamington Hotel.

NATIONAL

Alumni Post Graduate Medical Convention, College of Medical Evangelists, twenty-sixth annual meeting, February 25-27, Hotel Biltmore, Los Angeles, California.

American College of Surgeons, sectional meeting, Des Moines, Iowa, March 27-29, 1958.

American Gastroenterological Association, 59th annual meeting, Washington, D. C., May 30-31, 1958. H. M. Pollard, M.D., Secretary-General, University Hospital, Ann Arbor, Michigan.

Mediclinics of Minnesota. Fort Lauderdale, Florida, March 2-12, 1958.

Oklahoma Colloquy on Advances in Medicine, first meeting, February 6, 7 and 8, 1958, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.

INTERNATIONAL

Fifth International Congress on Diseases of the Chest, sponsored by American College of Chest Physicians, Tokyo, Japan, September 7-11, 1958.

Fifth International Congress of Internal Medicine, Philadelphia, Pennsylvania, April 24-26, 1958. Edward R. Loveland, Secretary-General, 4200 Pine Street, Philadelphia 4, Pennsylvania.

International Society of Internal Medicine, Fifth International Congress of Internal Medicine, Philadelphia, Pennsylvania, April 24-26, 1958. Edward R. Loveland, Secretary-General, 4200 Pine Street, Philadelphia 4, Pennsylvania.

World Congress of Gastroenterology, Washington, D. C., May 25-31, 1958. H. M. Pollard, M.D., Secretary-General, University Hospital, Ann Arbor, Michigan.

SCIENTIFIC EXHIBITS SOLICITED

Members of the Minnesota State Medical Association are invited to exhibit a scientific project at the state meeting to be held May 22, 23, and 24, 1958 at the Minneapolis Auditorium, preceding the tenth anniversary meeting of the World Health Organization in Minneapolis. Treatment and management of special problems, better ways to do procedures, slants or tips on office management are several suggested ideas. Space will be available without charge. Mail exhibit space requests to Dr. Arnold Kremen, Chairman for Scientific Exhibits, Local Arrangements Committee, Minnesota State Medical Association, 496 Lowry Medical Arts Building, St. Paul 2, Minnesota.

MEDICAL LIBRARY ASSOCIATION

Medical Library Association's fifty-seventh annual meeting will be held in Rochester, Minnesota, June 2 through June 6, 1958, with headquarters at the Hotel Kahler. The theme of the Rochester meeting will be "Advances in Medical Library Practice."

POSTGRADUATE COURSE ON DISEASES OF THE CHEST

The Council on Postgraduate Medical Education of the American College of Chest Physicians will sponsor the 11th Annual Postgraduate Course on Diseases of the Chest at the Warwick Hotel, Philadelphia, March 3-7, 1958. The tuition fee is \$75.00 including round table luncheons. Further information may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

CONTINUATION COURSES

Medical continuation courses to be presented at the Center for Continuation Study, University of Minnesota, are as follows:

January 30-February 1	Emergency Surgery for General Physicians
February 6-8	Cardiovascular Diseases for General Physicians
February 10-15	Neurology for General Physicians
March 3-5	Pediatrics for General Physicians
March 17-19	Internal Medicine for Internists
March 20-22	Surgery for Surgeons

For further information concerning the above courses, write to the Director, Department of Continuation Medical Education, 1342 Mayo Memorial, University of Minnesota, Minneapolis 14.

METHODIST MISSION MEDICAL NEEDS CITED

The Board of Missions of the Methodist Church has announced a need for twenty doctors in its mission fields in ten countries overseas in 1958.

The board, through its Office of Missionary Personnel, is seeking to recruit ten women and ten men to serve as medical missionaries. The openings cover a varied range of medical fields, including internal medicine, surgery, general practice, public health, gynecology, pathology and radiology.

In 1958, doctors are being sought for work in the Belgian Congo, Mozambique, Southern Rhodesia, Angola, India, Pakistan, Korea, the Philippines, Sarawak (Borneo), and Mexico.

Persons interested in obtaining information about medical missionary service may write: Office of Missionary Personnel, 150 Fifth Ave., New York 11, New York.

(Continued on Page A-43)

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Specifically, the usefulness of Dartal has been established in psychoneuroses with emotional hyperactivity, in diseases with strong psychic overtones such as ulcerative colitis, peptic ulcer and in certain frank and senile psychoses.

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MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building, Saint Paul 1, Minnesota

F. H. Magney, M.D., Secretary

License of Former Fairfax Physician Suspended for Five Years

On November 8, 1957 the Minnesota State Board of Medical Examiners suspended for a period of five years the medical license held by Dr. Arthur T. Farisy, 65 years of age, who for the past several years has been engaged in the practice of medicine at 3200 W. National Ave., Milwaukee, Wisconsin. Dr. Farisy had been charged in a citation issued by the Board with having been convicted of a felony. Dr. Farisy was not present at the hearing due to the fact that on August 23, 1957 he had been sentenced by the Hon. Herbert J. Steffes, Judge of the Municipal Court of Milwaukee, Wisconsin, to two concurrent terms of not more than three years each in the Wisconsin State Prison at Waupun, Wisconsin, for supplying narcotic prescriptions to addicts. Dr. Farisy had entered a plea of guilty to two criminal offenses, a breach of good faith in prescribing narcotic drugs and unlawfully prescribing narcotic drugs.

Dr. Farisy was arrested following an investigation which began as the result of a raid made by Milwaukee police officers on August 18, 1957 in which several thousand dollars worth of narcotics and narcotic equipment were seized and three Chinese men were arrested. According to a Milwaukee detective, the men admitted obtaining some of the drugs from a doctor's prescription and the prescriptions written by Dr. Farisy were then uncovered in searching the records of various drug stores. It was found by the police that Dr. Farisy had issued 112 prescriptions for dolophine for one of these Chinese "patient" from January 9th to August 16th, out of a total of approximately 450 similar prescriptions written by the doctor in the same period. Dr. Farisy admitted that he received between two dollars and five dollars for each prescription and also that he postdated many prescriptions which were filled when he left town.

Dr. Farisy, who was born in Franklin, Minnesota, on August 24, 1892, graduated from Rush Medical College in 1920. He was licensed to practice medicine in Minnesota in 1923 by reciprocity and practiced for a number of years at Fairfax, Minnesota, before moving to Wisconsin.

License of St. Paul Physician Revoked for Claims in Treatment of Cancer

On November 8, 1957 the Minnesota State Board of Medical Examiners revoked the medical license held by Dr. Herman A. Hartung, eighty-four years of age, who formerly maintained an office for the practice of medicine at 321 First Federal Bldg., St. Paul, Minnesota. Dr. Hartung had been charged by the Board in a citation issued on July 25, 1957 with immoral, dishonorable and unprofessional conduct as defined by law in that he had offered in writing to accept a fee in the sum of \$100 from a patient who was afflicted with cancer of the sigmoid colon, with metastasis to the liver and lungs, for a treatment that involved the use of "chemicals and drugs in the form of a synthetic antitoxin which is injected into the muscle tissue."

Dr. Hartung was further charged with stating in the letter which was mailed to the wife of the patient, that he had a test which showed what stage of advancement the cancer was in and that "many cases in the first or second stage often get well with only one shot

of the antitoxin. The farther advanced cases naturally need more." In his letter Dr. Hartung urged the wife to bring her husband to his office. Other statements in the letter termed false and misleading by the Board were as follows: "With the old method of treating by surgery and x-ray, the patient really has no chance whatever. My record shows, that taking them as they come, I cure better than sixty-five per cent. If I would pick my cases I could or would have a ninety to ninety-five per cent cures." Upon being questioned by representatives of the Minnesota State Board of Medical Examiners, Dr. Hartung admitted that he had no records and therefore could not substantiate his claim of curing so many patients.

Although Dr. Hartung did not appear at the hearings before the Board either on August 23, 1957, or on November 8, 1957, he had admitted previously to representatives of the Board that he had administered the Koch oxidation catalyst treatment over a period of many years to patients who were suffering from cancer. According to Dr. Hartung, the liquid which was injected into the patient contained a chemical called "glyoxylide." He also said that he charged the patient \$100 for each injection out of which he paid \$25 to a Detroit, Michigan, firm for a vial of the preparation, but Dr. Hartung said the \$100 charge also included his fee for the examination. In reference to his test for cancer, Dr. Hartung stated in a letter sent by him to the Board: "I built my method of early detection and determining the stage of advancement of cancer on the pioneer work by Dr. Geo. S. White known as the Bio-Dynamo-Chromatic vagal reflex test. With the proper technique, this has given me almost unerring accuracy on the condition on hand."

After the testimony of the witnesses had been taken at the hearing on August 23, 1957, the attention of the Minnesota State Board of Medical Examiners was called to the fact that in the case of Koch et al vs. Federal Trade Commission, the United States Court of Appeals for the Sixth Circuit had held in an opinion dated July 8, 1953, that the evidence sustained a finding by the Commission that representations made in advertising concerning certain products, one of which was "Glyoxylide," were false and misleading in material matters and that the products involved had no therapeutic value. The complaint in the case brought by the Federal Trade Commission alleged that Koch Laboratories, Inc., and petitioners William F. Koch and Louis G. Koch, President and Secretary-Treasurer, respectively, of Koch Laboratories, Inc., were engaged in the manufacture and in the sale and distribution in interstate commerce of certain medicinal preparations designated as "Glyoxylide," "B-Q," and "Malonide Ketene Solution" and that, in the course and conduct of their business, petitioners William F. Koch and Louis G. Koch disseminated and caused to be disseminated, by the United States mails and by various means in commerce, false, misleading and deceptive statements and representations as to the therapeutic value of their aforesaid medicinal preparations for the purpose of inducing the purchase of these preparations.

It was also alleged in the complaint by the Federal Trade Commission that through the use of these statements and representations it was represented directly or by implication that "Glyoxylide" is an adequate treatment for any type or stage of cancer, leprosy, malaria, coronary occlusion or thrombosis, multiple sclerosis, arteriosclerosis, angioneurotic edema, obliterative endarteritis, asthma, hay fever, dementia praecox, epilepsy,

psoriasis, poliomyelitis, tuberculosis, syphilis, arthritis, and osteomyelitis, any type of allergy or infection, abscess of the prostate gland, septicemia, and insanity. When the case was originally heard before the Federal Trade Commission, thirty-three physicians and scientists testified for the Commission to the effect that the petitioners' product had no therapeutic value. Thirty-six witnesses, including twenty-nine physicians, testified on behalf of the petitioners.

Dr. Hartung was born in Washington County, Minnesota, on February 19, 1873, and graduated from the University of Minnesota with an M.D. degree in 1900, being licensed to practice medicine in Minnesota in June of that year. Dr. Hartung was engaged in the practice of medicine at Le Sueur, Minnesota, from 1906 until 1924 when he moved to St. Paul where he practiced until recently.

MEETINGS AND ANNOUNCEMENTS

(Continued from Page 68)

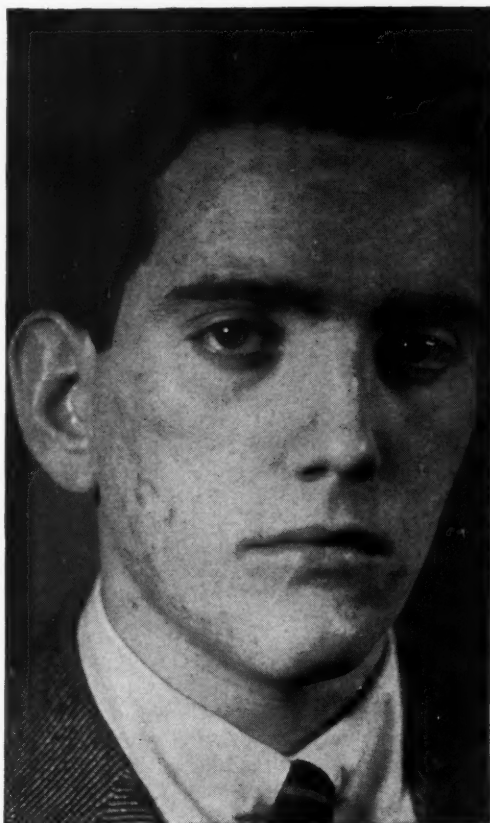
MISSISSIPPI VALLEY MEDICAL SOCIETY ESSAY CONTEST FOR 1958

The Mississippi Valley Medical Society has announced a cash prize of \$100.00 for the best essay submitted in its 1958 essay contest. Any subject of general medical or surgical interest including medical economics and education may be submitted providing the paper is unpublished and is of interest and applicable value to general practitioners of medicine. Contributions are accepted only from physicians who are members of the AMA and who are residents and citizens of the United States. Manuscripts must not exceed 5,000 words and be submitted in five complete copies, in manuscript style. The winning essay receives a cash prize of \$100.00, a gold medal, and a certificate, also an invitation to address the annual meeting of the Mississippi Valley Medical Society. (Held at time and place of the American Medical Writers' Association; 1958 Meeting, Hotel Morrison, Chicago, September 24, 25, 26.) The Society may also award certificates of merit to physicians whose essays rate second and third best. Essays must be in the office of the M.V.M.S. Secretary, Harold Swanberg, B.S., M.D., F.A.C.P., 209-224 W.C.U. Building, Quincy, Illinois, not later than May 1, 1958.

NATIONAL HEART INSTITUTE BOOKLET RELEASED

The U. S. Public Health Service has released Publication No. 513, entitled "Cerebral Vascular Diseases and Strokes," third ranking cause of death in the United States. A free copy may be obtained from the Heart Information Center, National Heart Institute, Bethesda 14, Maryland. The booklet, a publication of the Public Health Service's National Heart Institute, states that strokes and other effects of cerebral vascular disease caused an estimated 179,110 deaths in 1956, and that approximately two million people are incapacitated or handicapped by brain blood vessel disease.

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In Memoriam

LLOYD L. MERRIMAN

Dr. Lloyd L. Merriman, Duluth physician specializing in internal medicine, died November 22, 1957 at his residence. He was sixty-seven years of age.

Dr. Merriman had practiced medicine in Duluth since 1919 and was a former chief of staff of St. Luke's Hospital and also was a member of the medical staff of St. Mary's Hospital.

Dr. Merriman was born in Huron, South Dakota. He studied at Cornell University, the University of Chicago and Rush Medical School, Chicago, receiving his M.D. degree from the latter institution in 1918. The following year he completed a fellowship for his specialty with Dr. B. W. Sippy in Chicago.

Active in Masonic affairs, he was a past master of Glen Avon Lodge, AF&AM, a past patron of the Glen Avon Chapter of the Order of Eastern Star and was a member of the Commandery and Aad temple of the Shrine.

Medical organizations in which he held membership included the St. Louis County Medical Society, the Minnesota State Medical Association, the American Medical Association, and the Minnesota State Mental Health Committee.

Surviving are his wife, Mamie; one son, Dr. Lloyd A., Marietta, Georgia; one daughter, Mrs. John Runquist, Duluth; two sisters, Mrs. Floyd Eberline, and Mrs. Henry Wallace, Britton, South Dakota; one brother, Hollis, Seattle, Washington, and eight grandchildren.

NESMITH P. NELSON

Dr. Nesmith P. Nelson, Minneapolis, retired physician and surgeon, died December 14, 1957, at the age of eighty years.

Dr. Nelson had practiced medicine in Minneapolis and Brainerd until the time of his retirement in 1953. He was an eye, ear, nose and throat specialist.

The deceased was born in Anoka, Minnesota, and his preliminary education was obtained at Minneapolis South High School. He received his medical degree at George Washington University in Washington, D. C. He did postgraduate work for one year at Manhattan Eye, Ear, and Throat Hospital, New York City, and also at Cornell University Medical School and New York Eye and Ear Infirmary. In 1920, he came to Minneapolis for a year, then moved to Brainerd until 1949.

He was a member of the Upper Mississippi Medical Society, an associate member of the Minnesota State Medical Association and a member of the American Medical Association. Other positions and professional affiliations held by Dr. Nelson included: Association of Military Surgeons of United States, George Washington University Medical Society and American Association of Ophthalmology. Dr. Nelson was also past president of Upper Mississippi Medical Society and a member of Zuhrah Temple, Scottish Rite and Sons of Norway.

Survivors include his wife, Rose, and two sons, Floyd A., Tacoma, Washington, and Russell D., Excelsior.

JOSEPH M. SPRAFKA

Dr. Joseph M. Sprafka, St. Paul surgeon, died December 6, 1957 in St. Joseph's Hospital after a lengthy illness. He was sixty-two years of age.

Born in Perham, Minnesota, he attended the public schools of that community. He was a graduate of the University of Minnesota Medical School, class of 1919. His internship included eighteen months at St. Anthony De Padua Hospital in Chicago, Illinois.

Dr. Sprafka was a resident of St. Paul for thirty-six years. He was an active member of the Minnesota State Medical Association, the Ramsey County Medical Society, and the American Medical Association. He was also a member of the International College of Surgeons.

Survivors include his wife, Bernice; three sons, Dr. Joseph L., Dr. Gregory A., and Robert F., all of St. Paul; two brothers, Dr. Ambrose, Detroit Lakes and Alfred, St. Louis Park; and eight grandchildren.

OSWALD S. WYATT

Dr. Oswald S. Wyatt, Minneapolis pediatric surgeon, died November 21, 1957 in Abbott Hospital in Minneapolis. He was sixty-three years old.

Dr. Wyatt was chief of children's surgery at Minneapolis General Hospital. In addition, he held the following positions and professional affiliations: assistant professor of surgery, University of Minnesota; consultant in surgical pediatrics, Minneapolis General Hospital; Glen Lake Sanatorium, and Lymanhurst Pediatric Hospital.

Born in Canada, he received his preliminary education at East High School in Minneapolis. In 1919, Dr. Wyatt was graduated from the University of Minnesota Medical School. He interned for one year at General Hospital and was the first resident in surgery to be trained there. In 1928, he became one of the first three men in the United States to begin specializing in pediatric surgery.

The deceased was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, and the American Medical Association.

Survivors include: one son, Oswald S. Wyatt, Jr., Minneapolis; and a brother, Dr. Alvin S. Wyatt, Clinton, Wisconsin.

Visible fat, resembling cream, on the stools or in the surrounding fluid is pathognomonic of pancreatic disease.

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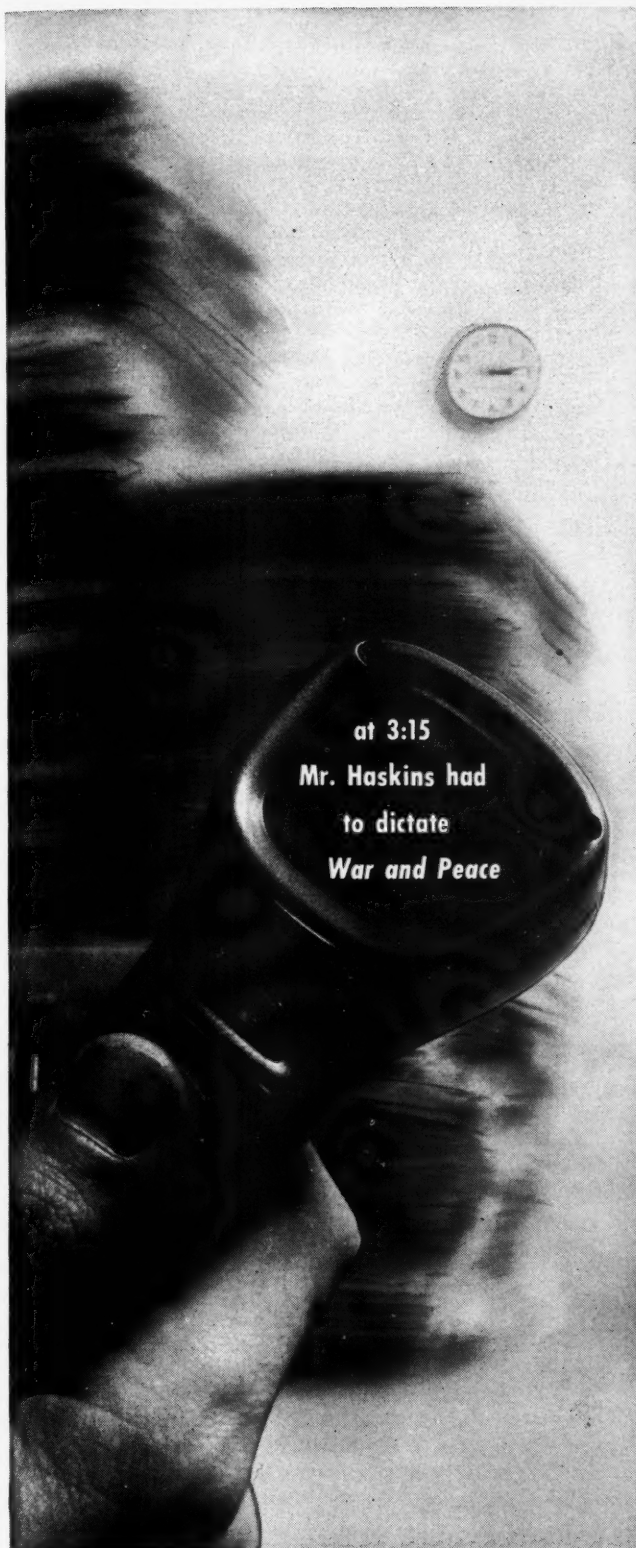
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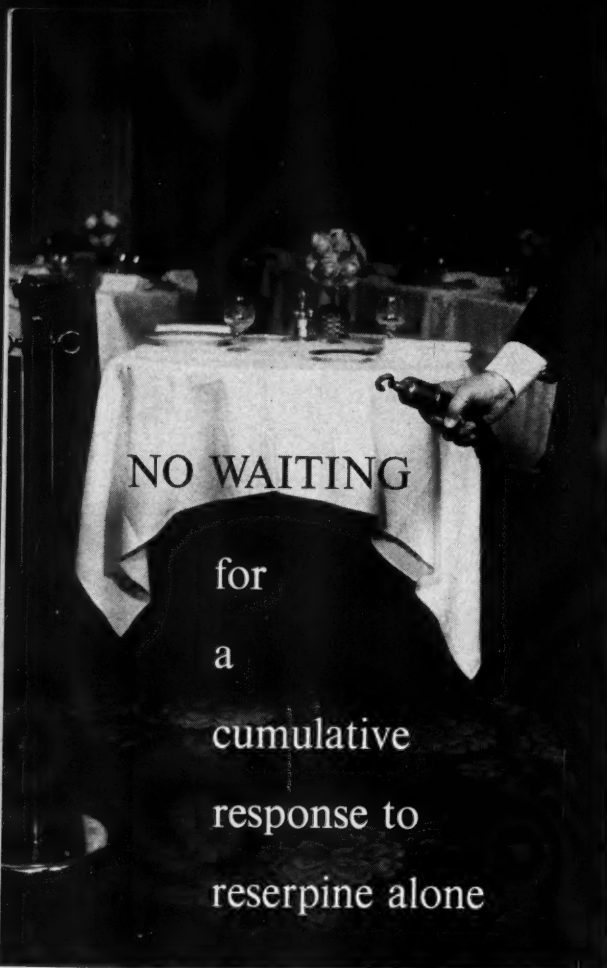
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Woman's Auxiliary

MEDICAL AUXILIARIES OF DISTRICT IV HOLD REGIONAL MEETING

The Auxiliary to the Blue Earth County Medical society held its regional meeting at the Century Club, North Mankato, on Monday, November 25. The auxiliaries of Brown, McLeod, Nicollet-Le Sueur, Scott-Carver, and Waseca are included.

Mrs. C. L. Oppegaard of Crookston, state medical auxiliary president, and Mrs. Reuben Erickson, president-elect, were present at the luncheon. Mrs. Oppegaard informed the group of the coming auxiliary activities.

David Ling, who is in charge of the driver's training program at the Mankato high school, spoke on "The Youthful Driver." He stated that nationally students taking an approved behind-the-wheel, driver-training course had only half as many accidents as their classmates who did not have the course. This figure holds true in Mankato as well. Furthermore, it is the driver who goes out of control, not the car. Hubert Cary, safety supervisor of Northern States Power company, listed rules of safety pertaining to the home, such as stair rails, tacked down carpeting on stairs, care with electrical appliances in bathrooms, and many more valuable tips. It is not the uncommon hazard but the everyday one that causes trouble.

Mrs. Alton Lindblom, of Mankato, District 4 regional advisor to the Minnesota State Medical auxiliary, was in charge of general arrangements. Her committee consisted of Mrs. George Penn, state auditor of the medical auxiliary; Mrs. E. E. Heller, president of the Blue Earth County Medical auxiliary, Mrs. John Heimark, safety chairman; and Mrs. Robert Engstrom.

MRS. W. C. CHAMBERS

Funeral services for Mrs. Anna Chambers, seventy-five, were held November 5, 1957, in the First Presbyterian Church of Blue Earth. She was the wife of Dr. Winslow C. Chambers, Blue Earth physician for more than fifty years.

Mrs. Chambers was a member of the Woman's Auxiliary to the Blue Earth Valley Medical Society. In addition, she was active in many civic and church organizations including units within the Presbyterian church, Faribault County Historical Society, county Republican activities, American Legion Auxiliary, Girl Scouts, Red Cross, Christmas Seals and other health associations and groups. Mrs. Chambers was also the first president of the United Church Women in Blue Earth, one of the trustees of the permanent care fund of the Riverside Cemetery in Blue Earth, and a charter member of the Home Economics Club and the Riverside Town and Country Club.

Surviving are her husband; two sons, Clarke, a professor of history at the University of Minnesota, and Winston, Seattle, Washington; one daughter, Mrs. Sheldon B. Vance, Brussels, Belgium; and six grandchildren, Robert and Stephen Vance, Brussels, Belgium; James Chambers, Seattle, Washington; Jenny, Katherine and Robert Chambers, St. Paul.

General Interest

Dr. J. A. Myers, professor emeritus of medicine and health at the University of Minnesota, has received the American Health Association award in recognition of his leadership in promoting tuberculosis skin testing surveys in schools of Minnesota and other states.

* * *

"Bone Tumors: General Aspects and an Analysis of 2,276 Cases," a new 224-page book by **Dr. David C. Dahlin**, consultant in the section of Surgical Pathology of the Mayo Clinic at St. Mary's Hospital and associate professor of pathology in the Mayo Foundation, has been published by Charles C Thomas of Springfield, Illinois.

* * *

Dr. James W. Kernohan, chairman of the Sections of Pathology of the Mayo Clinic and professor of pathology in the Mayo Foundation, was elected president of the American Board of Pathology at the October meeting of that organization.

* * *

Dr. L. A. Laikola, of Adrian, has been elected president of the Southwestern Minnesota Medical Society. He succeeds **Dr. Victor Doman**, of Lakefield, as president. Other elected officers include: **Dr. F. W. Bofen-**

kamp of Luverne, president-elect; **Dr. Hugh Patterson** of Slayton, vice president; and **Dr. O. M. Heiberg**, Worthington, secretary.

* * *

Dr. S. A. Slater, Worthington, superintendent, and **Dr. C. L. Sherman**, Luverne, commission president of the Southwestern Minnesota Sanatorium in Worthington, were recently honored for thirty-eight years of activity in the battle against tuberculosis.

* * *

Dr. Richard W. Anderson has resigned his post as chief of the psychiatric service at Minneapolis General Hospital.

* * *

Dr. R. A. MacDonald, Littlefork, will continue his practice in that city, following his resignation as administrator of that community's municipal hospital.

* * *

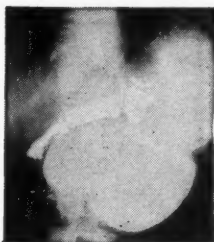
Dr. Ray C. Anderson, University Hospitals, Minneapolis, has been elected a fellow in the American Academy of Pediatrics.

* * *

Dr. and Mrs. Moses Barron, Minneapolis, were recently honored at the twenty-fifth annual dinner of the

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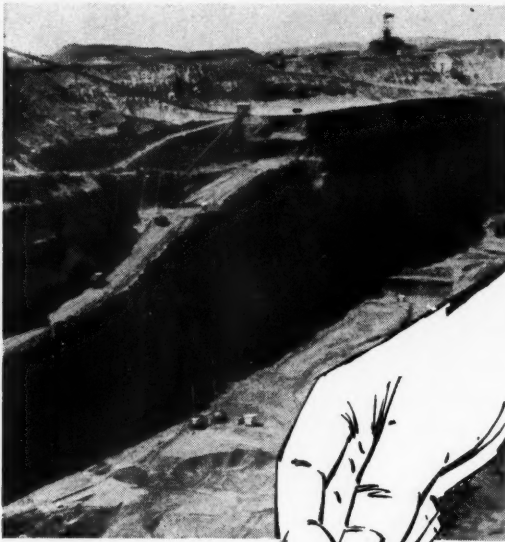


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Ferrous Sulfate, 4.5 gr.
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Vitamin B.....1 mcg.

Folic Acid.....0.25 mg.
Thiamine Mononitrate.....1 mg.
Riboflavin.....1 mg.
Pyridoxine Hydrochloride, 0.25 mg.
Calcium Pantothenate.....0.25 mg.
Nicotinamide.....3.3 mg.
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Twin City Chapter, American Friends of the Hebrew University, which was held at the Dyckman Hotel.

* * *

Dr. Thomas William Parkin, Rochester, has been named a fellow of the American College of Physicians. Associates of the College also named include Dr. Joseph M. Kiely and Dr. Raymond D. Pruitt, both of Rochester; Dr. Charles Edward Lindemann of Minneapolis, and Dr. John K. Meinert of Willmar.

* * *

Two Minnesotans were among nine medical researchers and physicians who were recently cited for outstanding contributions to medical progress by the 1958 Modern Medicine Distinguished Achievement Awards. They are Dr. C. Walton Lillchei and Dr. Philip S. Hench, Rochester.

* * *

Dr. Clarence R. Ferrell, Grand Rapids, has been named Itaska County Home physician. He succeeds Dr. Clifford E. Sisler, who resigned to accept a position on the health staff of the University of Minnesota.

* * *

Anoka County physicians have named Dr. Matthew K. Plasha and Dr. Harold A. Mork to serve as a committee to whom any public health matters which concern the community are to be referred in the future.

* * *

Dr. Francis W. Lynch has been elected the 1958 president of the Ramsey County Medical Society. He succeeds Dr. Allen Wilson. Other officers elected include: Dr. Arthur H. Peterson, vice president; Dr. Gordon Kamman, president-elect; and Dr. Abbott Skinner, secretary-treasurer.

* * *

Dr. J. T. Anderson, who has practiced medicine at 8488 Central Avenue Northeast, Spring Lake Park, since 1952, has formally discontinued private practice.

* * *

Dr. W. A. Hanson, Minneapolis, has been elected Mississippi Valley Medical Society vice president for the state of Minnesota.

* * *

Dr. Reuben Berman, Minneapolis, has been appointed governor for the state of Minnesota, in the American College of Cardiology.

* * *

Dr. Merrill Chesler, Minneapolis, was the principal speaker at the November meeting of the Third District Minnesota Nurses Association, held at Mount Sinai Hospital. The lecture "Burn Therapy" was given in conjunction with a refresher course for Civil Defense.

* * *

Dr. E. J. Nelson, of Lonsdale, has been elected chief of staff of the Community Memorial Hospital in New Prague. He succeeds Dr. Elmer Doherty, of New Prague. Dr. Olaf Lukk, of Montgomery, was elected vice chief of staff and Dr. Elizabeth Rieschl, of Jordan, was re-elected secretary-treasurer.

GENERAL INTEREST

Dr. Donald C. Balfour, emeritus director of the Mayo Foundation and former head of a section of surgery in the Mayo Clinic, has been awarded a hand-illuminated certificate which designates him an honorary life member of the Medical Alumni Association of the University of Toronto.

* * *

Dr. Malcolm A. McCannel, has established a temporary branch office at Southdale at 3113 West 66th Street, Minneapolis. This location is in addition to the downtown office, 325 Doctors Building.

* * *

Dr. Edgar V. Allen, internist of the Mayo Clinic and professor of medicine in the Mayo Foundation, Graduate School, University of Minnesota, recently attended a meeting of the Council on Research in High Blood Pressure of the American Heart Association, Cleveland, Ohio. Dr. Allen is the retiring president of the American Heart Association. In Cleveland Dr. Allen also participated in a panel discussion on "The Business Man and His Heart."

* * *

Dr. Gershom J. Thompson, head of the section of urology, has been elected president of the staff of the Mayo Clinic succeeding Dr. Herman J. Moersch. Dr. Frank H. Krusen, head of physical medicine and rehabilitation, was elected vice president; Dr. F. Raymond Keating, Jr., first counselor; Dr. George A. Hallenbeck, second counselor, and Dr. Charles A. Owen, Jr., was re-elected secretary.

* * *

Dr. Leo G. Rigler has been elected to the presidency of the Radiological Society of North America. Election took place at the 43rd annual meeting of Radiological Society of North America held November 17-22. Dr. Rigler this year began an association with Cedars



IT'S MY FIRST DAY OUT OF THE PSYCHO WARD. THEY THINK I'M CURED ENOUGH TO RUN THE ELEVATOR.

Wondering...



if that BMR test calculation was right?

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of Lebanon Hospital in Los Angeles as consultant in radiology following a long and distinguished career as director of the department of radiology and professor at the University of Minnesota School of Medicine.

Three members of the staff of the Mayo Clinic who are also members of the faculty of the Mayo Foundation, and the director of the Mayo Foundation, have been appointed members of the Senate of the University of Minnesota. The four are **Dr. Victor Johnson**, director of the Mayo Foundation and professor of physiology in the Mayo Foundation, Graduate School, University of Minnesota; **Dr. Raymond D. Pruitt**, a consultant in medicine in the Mayo Clinic and professor of medicine in the Mayo Foundation; **Dr. Charles F. Code**, co-chairman of the Section of Physiology in the Mayo Clinic and professor of physiology in the Mayo Foundation, and **Dr. William H. ReMine**, head of a section of general surgery in the Mayo Clinic and instructor in surgery in the Mayo Foundation.

Dr. John G. Rukavina, specialist in diseases of the skin, cancer of the skin and skin surgery, has opened his medical practice in the Lowry Medical Arts Building in St. Paul. He was formerly Associate Professor of Dermatology at the University of Wisconsin.

Dr. A. M. Lundholm, formerly of St. Paul, is now associated with the Cambridge Clinic.

Dr. Victor K. Funk has been named assistant superintendent and associate director of Glen Lake Sanatorium. **Dr. Peter M. Mattill**, who formerly held that position, has moved to Dr. Funk's present position as assistant medical director at Glen Lake.

Dr. Alden F. Wiley, formerly of Kalkaska, Michigan, has joined **Dr. Raymond Chittum** in full-time practice in the East Range Clinic at Hoyt Lakes. Other clinics are at Aurora, Eveleth, and Virginia.

Dr. Jack V. Wallinga, Minneapolis, has been named psychiatric consultant to the Lutheran Welfare Society of Minnesota.

Dr. Kermit Halverson, a native of Fergus Falls, has accepted the post of physician at the Chisholm Mesaba Clinic.

Dr. Charles W. Mayo has been appointed assistant chief medical adviser of the National American Legion.

Dr. Richard M. Hewitt, emeritus head of the Section of Publications of the Mayo Clinic, Rochester, Minnesota, and assistant editor of the *Journal of the American Medical Association* from 1925 to 1928, has been appointed Alfred P. Sloan Visiting Professor at the Menninger Foundation, Topeka, Kansas, for a six-month tenure. Dr. Hewitt is also emeritus associate professor of medical literature in the Mayo Foundation, Graduate School, University of Minnesota.

Dr. Harold E. Miller has been re-elected president of the Northwestern Hospital medical staff. Other new medical staff officers are: **Dr. Maynard C. Nelson**, vice president; **Dr. Albert J. Schroeder**, secretary-treasurer (re-elected); **Dr. Harold Buchstein**, chief of surgery; **Dr. Mark C. L. Hanson**, chief of medicine; **Dr. Edgar Ingalls**, chief of obstetrics-gynecology; **Dr. Northrop Beach**, chief of pediatrics, and **Dr. Frederick Hass**, chief of general practice.

Dr. Donald Honath has been named as chief of staff and president of the medical staff at the Owatonna City Hospital, succeeding **Dr. D. K. Halvorsen** to that post. Named to serve for the coming year with Dr. Honath were **Dr. J. A. McIntyre**, vice president, and **Dr. John Hoff**, secretary-treasurer.

Dr. Hiram E. Essex, co-chairman of the Section of Physiology of the Mayo Clinic at Rochester, Minnesota, and professor of physiology in the Mayo Foundation, Graduate School, University of Minnesota, delivered the Hatfield Lecture at the meeting of the Philadelphia College of Physicians and Surgeons of Philadelphia on January 8, 1958.

Dr. Suad A. Niazi, who has been associated with the Hauge Clinic in Clarkfield for the past ten months, has resigned that position to associate himself with **Dr. M. S. Nelson** in the Granite Falls Clinic, effective immediately.

GENERAL INTEREST

Work has begun on construction of a \$90,000 medical clinic at 8 W. Sixty-fifth Street, Minneapolis, for Drs. C. Gordon Watson, Robert L. Sturgis and Henry Brandt.

* * *

Dr. Jack F. Haas has announced his association with Dr. S. T. Kucera and Dr. G. N. Rysgaard, in their office at the Medical Arts Building in Northfield.

HYGIENIC GUIDES AVAILABLE

Hydrogen peroxide purchased from the corner drug store in a highly diluted solution has been essential to production of feminine blond coiffures for many years. The same hydrogen peroxide in its concentrated form can be a health hazard to the industrial employee if not properly controlled. Hazards and control of this concentrated chemical in the industrial environment are contained in a Hygienic Guide published in a recent issue of the *Industrial Hygiene Quarterly*. Hygienic Guides on silica, sulfuric acid and dimethylformamide are contained in the same publication. Guides on vanadium pentoxide, xylene, ethylene glycol monomethyl ether, phosphoric acid and toluene were published in a previous issue of the *Quarterly*. A total of forty-four subjects currently comprise the series.

Hygienic Guides are prepared by a committee of the American Industrial Hygiene Association as part of its effort to safeguard the health of the industrial employee. Each Guide covers a single chemical with the latest available information on maximum allowable concentrations for both short and long term exposures, significant chemical and physical properties, major uses, evaluation of exposures and engineering and medical control procedures with literature references. They



form a ready reference for industrial hygienists, medical and safety directors, plant engineers and others concerned with the health and safety of industrial employees.

A complete list of currently available Guides can be obtained from the American Industrial Hygiene Association, 14125 Prevost, Detroit 27, Michigan. Single copies of each are also available from the same source at 25 cents each. Remittance must accompany orders of \$2.00 or less. Discounts of 20 per cent are allowed on orders for five or more, and 40 per cent for 100 or more. Each Guide is a single sheet, punched for a multiple ring binder. Binders are available at \$1.25.

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MINNESOTA BLUE CROSS-BLUE SHIELD

MINNESOTA BLUE CROSS-BLUE SHIELD

More than \$23,490,000 has been paid to hospitals by Minnesota Blue Cross for 1,017,294 days of hospital care incurred by 168,896 participant subscribers during the first ten months of 1957.

The effect of the month of October upon Blue Cross year to date experience was an increase in hospital expense exceeding \$2,580,000 representing nearly 109,000 days of hospital care incurred by 17,571 participant subscribers. An increase of 14 per cent was experienced in number of Blue Cross cases paid per year per 1,000 contracts protected during the month of October compared with the preceding month.

Accident cases and conditions related to pregnancy continue to be the leading reasons for the hospitalization of Blue Cross subscribers, however, the number of subscribers hospitalized for respiratory illnesses increased 73 per cent from September to October, 1957.

An increase in frequency of respiratory illnesses incurred is normally anticipated during the last quarter of the year compared with the preceding quarter. This normal increase is a continuing trend upwards to the peak period for respiratory illnesses experienced during the first four or five months of any year. In a review of the number of subscribers hospitalized for respiratory illnesses from July through October, 1957, compared with 1956, it is noted that nearly 1,600 more Blue Cross subscribers incurred hospital care due to respiratory illnesses during this period of 1957 than during the

same period of the preceding year—thirteen more cases per day admitted—or one every two hours.

Respiratory illnesses accounted for 14.3 per cent of the total cases paid during the month of October, 1957, and represented 72 cases per year per 1,000 contracts protected compared with 11.9 per cent representing 58 cases paid per year per 1,000 contracts protected during October, 1956.

Minnesota Blue Shield paid physicians \$7,113,817 during the first ten months of 1957 for medical-surgical-obstetrical and related services rendered participant subscribers. This figure exceeds by more than \$1,400,000 or over 24 per cent, the amount paid physicians for care of participant subscribers during the first ten months of 1956. From January 1, 1956, through October, 1956, Blue Shield paid \$5,707,041 in the form of subscriber benefits.

Blue Shield payments to physicians during the first ten months of 1957 exceeded, by more than \$190,000, the amount paid during the entire year 1956 for doctors' services rendered participant subscribers. Blue Shield provided subscriber benefits of \$6,919,348 during the twelve months of 1956.

During the first ten months of 1957, Blue Shield provided benefits for 258,728 physicians' services rendered participant subscribers. This figure is more than 24 per cent greater than the number of physicians' services, 206,245, for which Blue Shield provided benefits during the same period in 1956.

Participant subscribers numbered 859,327 as of October 31, 1957, or 55,512 more than the number of participant subscribers enrolled as of the same date in 1956. Minnesota Blue Shield participant subscribers numbered 803,815 as of October 31, 1956.

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Vaginal carcinoma is uncommon and usually starts on the posterior wall in the upper third of the vagina.

* * *

Sarcomas of the female genital tract usually arise in the body of the uterus.

* * *

Cancer of the larynx in younger individuals is being seen more and more frequently and must be suspected in a patient of almost any age who is persistently and progressively hoarse.

Book Reviews

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

THE INCURABLE WOUND. By Berton Roueche. 177 pages. Price \$3.50, cloth. Boston: Little, Brown & Company, 1958.

MODERN SEX LIFE. Edwin W. Hirsch, M.D. (A Signet Book). 160 pages. Price 35c, paper cover. New York: The New American Library of World Literature, Inc., 1957.

SURGERY IN WORLD WAR II. OPHTHALMOLOGY AND OTOLARYNGOLOGY. Editor in Chief, Colonel John Boyd Coates, Jr., MC. 605 pages. Illus. Price \$5.00, cloth. Washington, D. C.: U. S. Government Printing Office, 1957.

BONE TUMORS. General Aspects and an Analysis of 2,276 Cases. David C. Dahlin, M.D., Consultant, Section of Surgical Pathology, Mayo Clinic; Associate Professor of Pathology, Mayo Foundation, Rochester, Minnesota. 224 Pages. Illus. Price, \$11.50, cloth. Springfield, Illinois: Charles C Thomas, 1957.

DISEASES OF THE NOSE, THROAT AND EAR. Howard Charles Ballinger, M.D., F.A.C.S., Professor Emeritus, Department of Otolaryngology, Northwestern University Medical School, Chicago; Surgeon, Department of Otolaryngology, Evanston Hospital, Evanston, Illinois. John Jacob Ballinger, B.S., M.D., Associate, Department of Otolaryngology, Northwestern University Medical School, Chicago; Asso-

ciate Surgeon, Department of Otolaryngology, Evanston Hospital, Evanston, Illinois. 10th edition. Philadelphia: Lea and Febiger, 1957.

This tenth edition of a well-known and very popular textbook on diseases of the ear, nose and throat manifests many improvements over the previous editions. Many subjects are brought more up to date; e.g., physiology of the nose, eustachian tube and hearing; physiology and function of the labyrinth; malignant diseases of the nose, throat and ear; allergy and its manifestations; Ménière's disease; endoscopic diseases and their management, et cetera. This text is a complete discussion of diseases of the ear, nose and throat. Each subdivision covers the anatomy, treatment and complications of diseases of that part. This has been characteristic of previous editions and is an excellent help in teaching. All in all, this is an excellent book and in my opinion, will fill the need for a text and reference work in otolaryngology as was hoped by the authors. It will serve not only the student but also the practicing otolaryngologist as well.

Some of the sections are particularly outstanding. The chapter describing the physiology of the nose and sinuses with their treatments includes the most up-to-date information and is well written. The chapter on allergy is concise and covers the essential information without a lot of unnecessary material. The chapter on malignant growths of the face, nose, mouth, pharynx, larynx and trachea is concise and well illustrated. It covers with minimum information the problems most

(Continued on Page A-55)

when anxiety and tension "erupts" in the G. I. tract...

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FOR SALE—New office and equipment very reasonable. Located in good business section in Minneapolis. No cash needed. Address E-615, care MINNESOTA MEDICINE.

PLACEMENT SERVICE

The Minnesota State Medical Association maintains a Medical Placement Service for the benefit of physicians who are looking for locations and positions; also for communities, medical groups and physicians who are looking for licensed medical assistance. For information, write to the Minnesota State Medical Association, 496 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

BOOK REVIEWS

(Continued from Page A-53)

commonly encountered in otolaryngology and leaves out much of the more detailed information which is best left to this one subject alone.

Another attribute about this text to me is its discussion of many of the smaller fields in this specialty which are so necessary to successful treatment of ear, nose and throat diseases; e.g., treatment of epistaxis, headache, neuroses of the larynx, defects of speech, impacted cerumen, deaf mutism and aural rehabilitation. However, these small sections could well be expanded. The chapters on endoscopy by Gabriel Tucker, Chevalier Jackson and Joseph Atkins are a valuable part of this text as they cover a vital part of the modern otolaryngologist's practice.

The criticisms of the text are but few and will undoubtedly be corrected in future editions. Most of the criticisms stem from the rapid recent advances in otolaryngology which renders a text almost obsolete before it can be published.

As mentioned in the preface, this book has evolved during its various editions into somewhat of an encyclopedic type not due to the original intention of the authors, but by the gradual inclusion of many of the less well-known clinical entities during the almost fifty years of its existence (first edition, 1908). The authors would do well to eliminate much of this encyclopedic, merely historical information from a text which is intended to serve the busy otolaryngologist and the student

whose time is already too well filled with essential information; for example, the elimination of obsolete tests for hearing which are only of historical interest, operations which have been considered obsolete by modern otolaryngologists, and the description of equipment which in the eyes of present surgeons is no longer of much use. A great deal can be accomplished to make this book more concise and more helpful by such eliminations.

The material on otology could be improved. The impression is left that the surgical procedures described many years ago for the treatment of ear disease are still as well accepted as endaural procedures which are now almost universally employed in the large teaching institutions. As a matter of fact, as much space is given to the post auricular approach to the middle ear using hammer and chisel as is given to the modern endaural procedures. Stapes mobilization, tympanoplasty, selection and fitting of hearing aids, the management of deafened patients receive inadequate discussion.

As a practicing otolaryngologist, I believe that the difficulties most commonly seen in practice should be given more discussion; for example, allergy of the ear, nose and throat, pains in various locations of the head and neck, tumors and their treatment, endoscopic problems, fitting of hearing aids, management of the deafened patient.

WILLIAM F. ANDREW, M.D.

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in spastic and irritable colon



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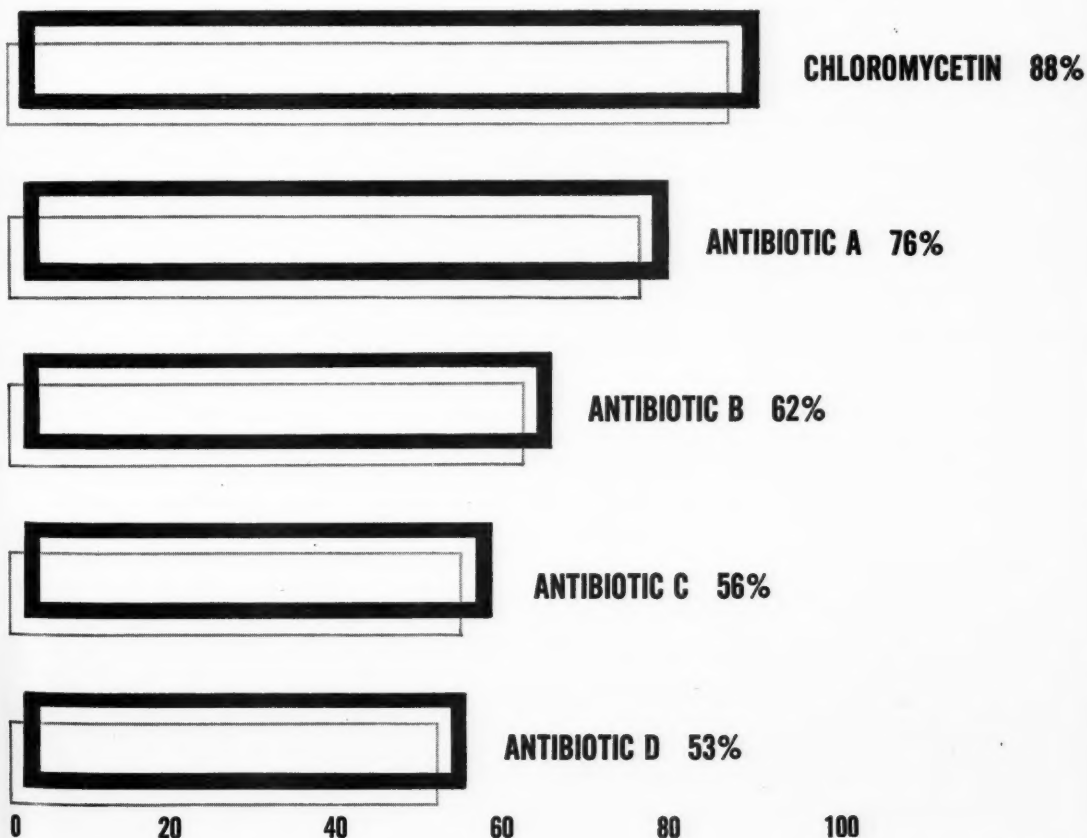
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